

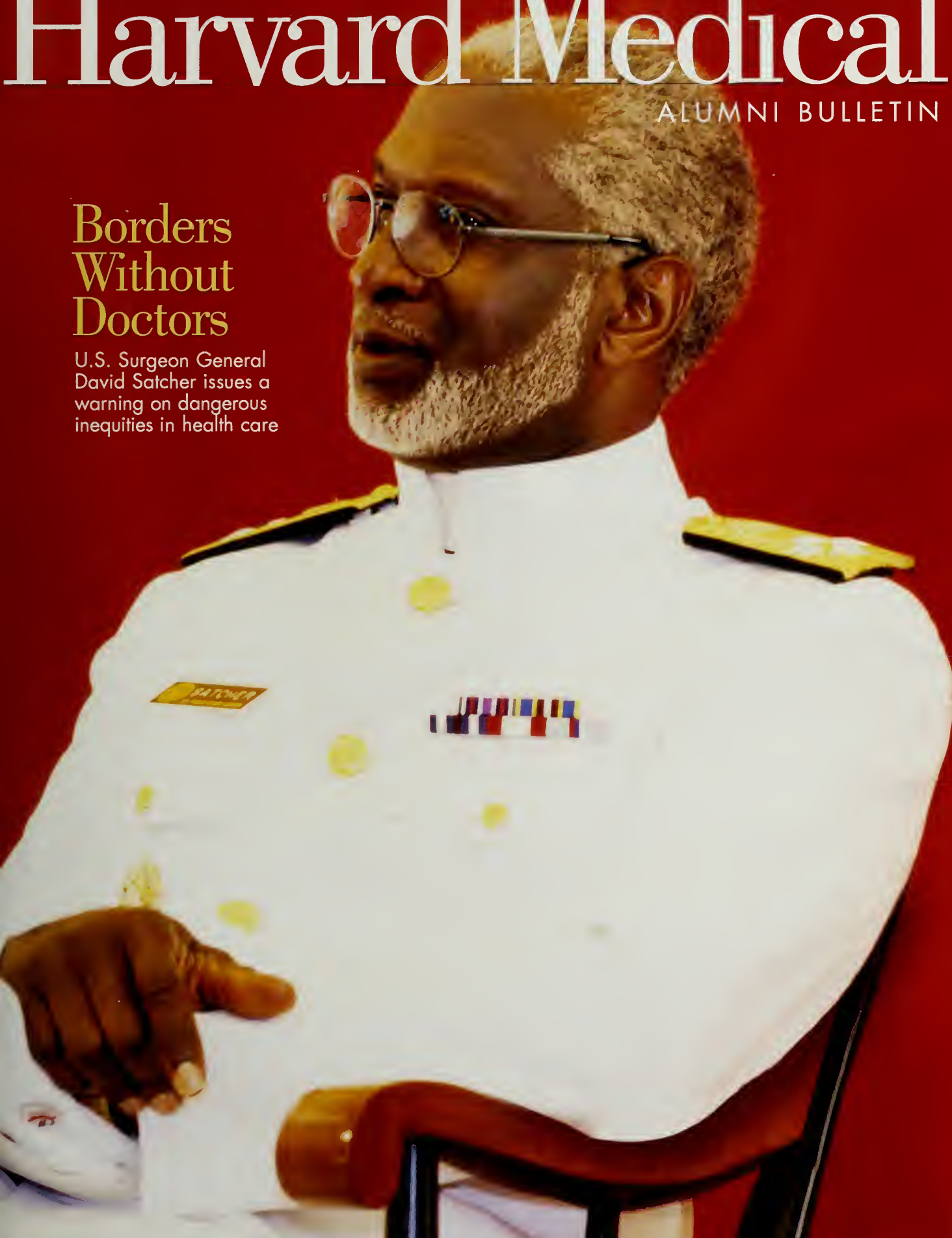
AUTUMN 1999

Harvard Medical

ALUMNI BULLETIN

Borders Without Doctors

U.S. Surgeon General
David Satcher issues a
warning on dangerous
inequities in health care





LANDMARK

1906

An afternoon tea on the "Promenade" helped mark the dedication of the new HMS Quadrangle. The invitation read, "The Medical Profession of New England Requests the Pleasure of Your Company with Ladies."

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Cover photograph by Graham Ramsay



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In this Issue

HMS has now graduated the last class for whom its apostrophe means "19." This turn of the numerals—if not, strictly speaking, the millennium—heralds the end of a century of profound change in the School's student body. Other dates beginning with "19" marked turning points more critical for HMS as a social phenomenon: 1919, when the formidable Alice Hamilton joined the faculty as its first woman of any rank; 1945, when a dozen brave and talented women entered the student body; 1949, when the first African American man was named a full professor, or 1961, when the first woman achieved that status; 1968, when the need to admit racial and ethnic minorities was articulated as policy; 1995, when women first outnumbered men in the entering class.

Many of the changes could be seen as a response to exigency. In 1919, Hamilton was by far the best qualified person to develop a research program in occupational health, a dominant issue in the wake of America's increasingly rapid industrialization. By 1945, the toll of the Second World War made the exclusion of women from the ranks of Harvard medicine seem all but unpatriotic. The appalling assassination of Martin Luther King, and the threats implicit in the civil unrest that followed it, made it very difficult to go on ignoring the underrepresentation of minorities in the student body.

Easy as it would be to see the past century as a history of grudging accommodation to the need for more personnel or the fear of being branded as discriminatory, the reality seems to me quite different. These changes have brought about an accelerating and autocatalytic transformation of the culture and values of the School. It was a century after the first woman sought admission until the first women were admitted; in a quarter of that time the tacit limit on women in the class was abandoned, and another 25 years later women became the majority in a class. It was a century after the first African American graduated until the School ambivalently began its program of broadening ethnic representation in the student body. Since then, over a 30-year span, the School has moved from accommodation to vision in its valuing of diversity.

There can be no doubt about the lack of diversity in the faculty, and no one should underestimate the remaining obstacles to achieving even a modest increase in the immediate future. On the other hand, it is impossible when looking at the kaleidoscope of faces and names in each graduating class, to doubt the inevitability of change or fail to be delighted by it.

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Nursing Five Decades Ago

Imagine my delight when I found my picture with the little polio patients in the spring issue of the *Bulletin*. The picture of me standing in my pristine uniform 50 years ago gave me a fabulous opportunity to share a part of my life—when polio was not obsolete—with my eight children and eighteen grandchildren.

My claim to fame is that I am the wife of an HMS graduate—Albert F. Hendler '49—and the granddaughter of John Henry Ash, Class of 1882. I attended the 50th reunion in June with Albert and loved returning to my birthplace, the familiar places of my youth, and the wonderful memories of medical studies at Children's Hospital, Boston Lying-In Hospital, Massachusetts General Hospital, and McLean Hospital.

Thank you very much for remembering all the wonderful nurses at Children's Hospital and all the amazing doctors and medical students who made

Harvard such a wonderful asset for every person in the world.

POLLY HENDLER
DALLAS, TEXAS

Pediatrician's Progress

As a retired pediatrician, I was fascinated by your spring issue on children's health. Since I graduated from HMS in 1935, your readers might be interested in some observations covering the decade before the times narrated so well by Lewis Barness.

One recollection is from a pharmacology lecture by Reid Hunt in 1932 in which he stated that he knew of no medicine that would destroy microorganisms in the human body without doing unacceptable harm, and the possibility of such medicines seemed unlikely.

Infant feeding was dominated by the concept of control. When doctors finally were able to develop nutritionally adequate and safe artificial feedings in

the 1920s, they began to replace breast feeding, especially in the more highly educated population (just the opposite of what is occurring today). Mothers constructed formulas with boiled or evaporated milk and added carbohydrates, as the few available prepared formulas were very expensive. Regular clock-watching feeding schedules and amounts were the order of the day. The behavioristic psychology of John B. Watson encouraged "discipline" of infants in the early months; mothers were urged to "let them cry it out."

Prenatal instruction in infant care and feeding was essentially nonexistent, unless given by family members. Mothers were kept in bed in the hospital for as long as two weeks following a normal delivery. On the second or third day, after formula had been given, the obstetrician might ask the mother if she wanted to breastfeed. Pediatricians only occasionally saw newborns in the hospital—usually when they had problems.

During my internship it was my privilege to see a person with streptococcal sepsis recover with treatment by Neoprontosil—a miracle in 1936, when the death of President Coolidge's son in the White House was still a recent memory. But basically all our therapy was palliative, recovery resulting from natural processes rather than our efforts. This was so true that our final HMS examination (blue book, four hours) had one question, something to this effect: List all conditions for which there is specific therapy, giving etiology, pathology, diagnosis, treatment, and prognosis.

A landmark in the professional understanding of infant development and care was the publication in 1941 of *Babies Are Human Beings* by C. A. Aldrich (who incidentally was one of my examiners for the pediatric boards). More insightful and caring attitudes were popularized by Benjamin Spock a little later, with gradual education of parents coincident with the many advances noted by Drs. Brazelton and Barness in their articles.



It has been my privilege to be active in pediatrics during years of so much change, most of which has been beneficial for children. I was able to do a lot of teaching, eventually becoming clinical professor of pediatrics at Temple Medical School (St. Christopher's Hospital for Children), and chief of pediatrics at Abington Memorial Hospital, which has developed one of the largest newborn services in Pennsylvania. The solo practice that I started in 1939 has developed into Abington Pediatric Associates and is still doing well, with six pediatricians and a large staff, even in today's economic chaos. With time consumed by these activities, I wasn't able to contribute significantly to medical literature.

JOHN JUDD SHIELDS '35
JENKINTOWN, PENNSYLVANIA

Rheumatic Fever Revisited

"Pediatric Care Fifty Years Ago," the interesting article by Lewis Barness in the spring issue of the *Bulletin*, brought back memories of my experience at the House of the Good Samaritan, later the

Rheumatic Fever Division of Children's Hospital in Boston.

As Dr. Barness noted, rheumatic fever at that time was a devastating disease. Although mortality (and probably incidence) from rheumatic fever and its accompanying carditis had been gradually declining since the early part of the twentieth century, it was still a common and dread disease in the 1930s and 1940s. When I first came to the hospital, its 80 beds—all devoted to patients with rheumatic fever—were full. In one epidemic of streptococcal throat infections among ward patients, the death rate was 25 percent for those with rheumatic heart disease. As recently as 1943, rheumatic fever in the United States was the leading fatal disease among 5- to 19-year-olds and the second leading fatal disease among 20- to 24-year-olds.

Although bed rest and aspirin were the only available treatment at that time, there actually was little need for aspirin since joint pain, which most often called attention to the onset of the disease, soon subsided. The large doses of aspirin that Dr. Barness mentioned were used only

for a limited period in a clinical trial that turned out to be negative.

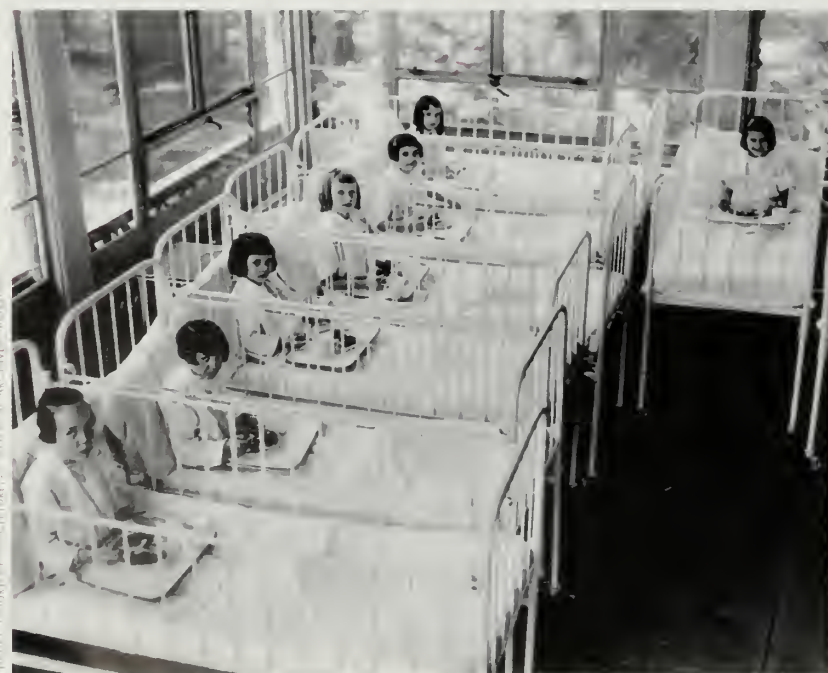
The key to our understanding and management of rheumatic fever was the discovery in 1931 by Coburn in the United States and Collis in England that rheumatic fever is always caused by an antecedent streptococcal throat infection. Although T. Duckett Jones, then research director at the Good Samaritan, never fully accepted this hypothesis, he did not interfere with independent studies initiated by his associates.

In 1935 Magat reported the antistreptococcal activity of Prontosil (and then sulfanilamide); two years later, we were the first to try to prevent rheumatic fever by using it to treat streptococcal throat infections. The study failed because sulfonamides suppress but do not eradicate streptococci from the tissues.

Penicillin was discovered in 1929 by Fleming, but was not isolated from the penicillin mold until 1940 by Chain and Florey and did not become available in reasonably large amounts until the mid-to-late 1940s. In 1947 and 1948, my group showed for the first time that rheumatic fever could actually be prevented by treating group A streptococcal throat infection with penicillin.

In 1949 Hench reported the remarkable suppressive effect of cortisone in arthritis, and in 1950 my group first demonstrated that ACTH—and later cortisone—was lifesaving in patients with severe rheumatic carditis. After that discovery, admissions to the House of the Good Samaritan declined steadily, and, by 1973, the wards were empty.

BENEDICT F. MASSEEL '31
DIRECTOR EMERITUS, RHEUMATIC FEVER
DIVISION, CHILDREN'S HOSPITAL
BOSTON, MASSACHUSETTS



The *Bulletin* welcomes letters to the editor. Please send letters by mail (Harvard Medical Alumni Bulletin, 25 Shattuck Street, Boston, Massachusetts 02115); fax (617-432-0013); or email (bulletin@hms.harvard.edu). Letters may be edited for length or clarity.

The Class of 2003

WHEN DEAN JOSEPH MARTIN welcomed the Class of 2003 to HMS in early September, he emphasized the importance of community involvement.

"As you become immersed in your first year of medical or dental school," he said, "take time to think about how you can best serve each of your communities: the Harvard medical community, the larger communities of healers and scientists, and our neighboring communities in Boston, across the United States, and around the globe. If you do, you will be a credit to your profession, and a worthy carrier of the noble legacy of this School."

The HMS admissions office had nearly 40 percent more applications for the entering class in 1999 than for the previous year. It is the largest number—4,791—in at least two decades.

This sharp rise was the result of the School's decision to participate for the first time in the computerized, centralized application service coordinated by the Association of American Medical Colleges and now used by almost all U.S. medical schools, said Theresa Orr, associate dean for admissions and student services, who works with the faculty associate dean for admissions, Jules Dienstag. The national pool of medical school applicants numbered 16,170 this year. At HMS, a total of 1,044 applicants were interviewed for 165 places in the class.

Harvard's embrace of technology in the admissions process has not radically changed the class profile, Orr said. The entering class is similar in many respects to recent HMS classes, comprising 91 men and 74 women—a gender ratio nearly identical to those in the past two entering classes. (The classes entering in 1994 through 1996, by contrast, had more women than men.) The number of minority students entering also remains fairly steady. The Class of 2003 includes 49 Asians and Pacific Islanders, 20 African Americans, six Mexican Ameri-



RITE OF PASSAGE: At the Health Sciences and Technology Society's White Coat Ceremony, Stephanie Misono gets help donning her coat from Joseph Bonventre, master of the society. Each of the societies held its own White Coat Ceremony, a symbolic initiation into the HMS community.

cans, two Puerto Ricans, and two Native Americans. The youngest entering medical student is 20 years old, and the oldest is 34. The median age is 23.

Thirty-three U.S. states are represented in the class. As in most recent years, California leads with 40 students. Massachusetts is next with 21, followed by New York with 15, New Jersey with nine,

and Maryland with seven. One student is from Puerto Rico, two are from Canada, and one each is from Nigeria, Tanzania, Thailand, and the United Kingdom.

About 20 percent of the class (36 students) graduated from Harvard College. The next highest numbers come from Stanford (13), Yale (10), Princeton (9), and MIT (7). Science majors make up 65



THE ENTERING CLASS: Dean Joseph Martin welcomes the Class of 2003 to HMS.

percent of the class, while 11 percent majored in humanities and 5 percent in social sciences. Fourteen percent graduated with double majors and 5 percent graduated with other majors.

The State of the School

IN HIS SECOND ANNUAL STATE OF THE SCHOOL address on September 29, Dean Joseph Martin reaffirmed the seven priorities he laid out two years ago for HMS, but singled out three—education, research, and diversity—as keys to the School's future ability to fulfill its mission of using medical science to alleviate human suffering.

"We are in a pivotal time for biomedical science, for medical education, and for dealing with issues of diversity in our society," Martin said. "Each of these three areas is truly on the threshold of change—and a level of change that is rare in its magnitude."

"We will continue to pursue the other priorities aggressively," he added, referring to affiliate relationships, information technology, community service, and resource development. He stressed that these areas "are critical to the School

because they strengthen and enrich research, education, and diversity."

He described several new collaborative ventures, including the Dana-Farber/Harvard Cancer Center, the Center for Genomic Applications and Therapeutics, the Athinoula A. Martinos Center for Functional and Structural Biomedical Imaging, the Center for Craniofacial Biology, and the Center for Proteomics.

Martin noted that HMS finally has a full complement of strong leadership in the departments, with Carla Shatz as the new chair of Neurobiology, Edward Harlow as the new chair of Biological Chemistry and Molecular Pharmacology, and Ronald Desrosiers as head of the New England Regional Primate Research Center. To help satisfy the need for extra research space, construction will begin next spring on a building at the Harvard Institutes of Medicine.

Information technology will play an increasingly prominent role, Martin said, with projects such as eCommons, a network for sharing information across the Harvard medical community.

Martin lauded the work of Dean for Clinical Affairs Raphael Dolin and

others in laying the groundwork for a broad-based Harvard clinical research initiative. Martin stressed that engaging the broader community is key to the School's continued vitality.

"What I find exciting about the HMS commitment to community is our ability to give our efforts a scholarly undergirding that can help us disseminate our work more broadly," he said. The departments of Health Care Policy, Social Medicine, and Ambulatory Care and Prevention, he added, "remind biomedical scientists and clinicians that our work is not done in isolation."

Martin introduced the topic of education on the "bittersweet note" that Daniel Federman will step down as dean for medical education after ten years. "This will be a tremendous loss to the School," Martin said, adding that "there is a sweet edge," in that Federman has agreed to stay active as senior dean for alumni relations and clinical teaching.

New programs to enhance education include the Resident as Teacher program, the clinician teacher track for faculty appointments and promotions, the Virtual Patient project to help teach students about diseases rarely seen in hospitals, and grants to faculty for innovations using intranet technology.

Martin also noted that the new Division of Service Learning will develop curriculum and research opportunities in community service.

Addressing his third major priority, diversity, Martin said the School is doing well at the student level but needs to increase the number of women and minorities on the faculty and staff.

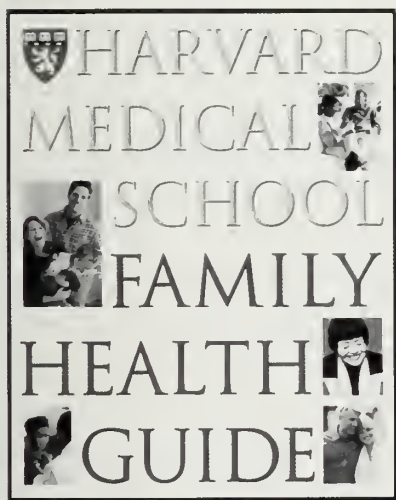
"The proportion of women faculty has risen, but they are still underrepresented at the full professor level," he said. "And even larger problems remain in the representation of certain minorities."

At the staff level, he noted, a diversity initiative was launched this year, with efforts to recruit and retain minority and female staff and create a more comfortable work environment for all. To enhance relations between the School and surrounding communities, Martin

appointed associate dean Joan Reede to direct the new Office for Community Outreach.

In closing, Martin related an anecdote about LeRoi Hicks, who came to the Harvard medical community for a visiting clerkship and later became chief resident at Mount Auburn Hospital.

"Only by exposing students early to academic medicine can we hope to retain those people of any persuasion who will make the best teachers and researchers, and ultimately have the greatest impact on health and well-being," Martin said. "If we can keep stories like LeRoi's coming, we can truly say we are on the threshold of a better society."



A New Health Guide

THROUGH JUST THE TURN OF THE PAGE OR click of the mouse, HMS can keep your family abreast of the latest medical advances in treatments and procedures.

The *Harvard Medical School Family Health Guide*, a comprehensive 1,288-page volume, is the first medical guide to have a continually updated Web site (www.health.harvard.edu/fhg). The *Family Health Guide*, edited by Anthony Komaroff, HMS professor of medicine at Brigham and Women's Hospital, enlisted more than 160 faculty members to write

the chapters. Faculty from 12 HMS-affiliated hospitals and research centers contributed material, which drew on the experience of more than 7,000 doctors and researchers from all affiliates.

"We try to cover all the major symptoms, diseases, diagnostic tests, and treatments, as well as explain how the health care system works, and how to work with managed care," said Komaroff, also the editor-in-chief of Harvard Health Publications. "We explain the benefits and risks of various tests and treatments, in quantitative terms, using friendly graphics."

The Web site, accessible to all, but most helpful to those with the book, will include interactive features the book cannot provide. "For example, you can type in the name of two medicines you are taking and find out if they could have a serious interaction," Komaroff said.

Another innovative aspect of the book is that it is written expressly for the current health care environment of managed care. "We try to explain what managed care is, and how it has come about," Komaroff said. "We also have a feature called 'When You Visit Your Doctor,' which outlines for many major diseases what questions your doctor may ask, the parts of a physical exam, and what laboratory tests may be ordered."

Other features include more than 900 illustrations, easy-to-follow symptom charts to determine when to call a doctor, and sidebars on alternative therapies.

The *Family Health Guide* is the first in a series of books that HMS will publish in a joint venture with Simon and Schuster. Some of the forthcoming books may have complementary Web sites as well.

Junior Faculty Fellowships

HMS HAS GIVEN A BOOST TO 29 JUNIOR faculty members, by awarding them \$25,000 fellowships intended to help them deal with life and work pressures at a busy yet critical time in their careers.

The one-year fellowships, called the 50th Anniversary Program for Scholars

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in Medicine, were started four years ago to mark the 50th anniversary of the admission of the first women to HMS.

Although open to junior faculty of both sexes, the program is designed to increase the number of women junior faculty members who join the ranks of senior faculty. It provides financial support at a time when many are juggling research duties, clinical work, and responsibilities to young families.

The awards were celebrated in September at a reception at HMS for the new fellows, faculty sponsors, department heads, and the donors who made the fellowships possible.

"This acknowledges, recognizes, and alleviates some of the pressure that besets us at this particular point in our careers," said HMS Dean Joseph Martin.

Many of the recipients said they would hire research fellows to help with their laboratory work and give them some breathing room for other duties.

"We're not short on ideas, just short on time," said Andrea Reid, instructor in medicine at Massachusetts General Hospital. "With our clinical and our outside-

hospital responsibilities, we do need some help."

The initial intent of the program was to award ten fellowships each year, according to HMS Dean for Faculty Affairs Eleanor Shore. Donor response has been so enthusiastic that more fellowships have been added each year.

"This past June, the first class to admit women celebrated its 50th reunion," Shore said. "Seven of those women are living, and those seven carried on the spirit of their pioneering efforts at HMS by donating the funds for one of the fellowships being celebrated today."

The next challenge, Shore said, will be to determine how the program can provide more support, by continuing to expand the number of awards, for example, or by increasing the fellowship's term to two years. "There is more than one way to invest in the future," Shore added. "One important way is to secure endowment, but another is to invest in people, with the expectation that the return on the investment will be just as high or higher over the next 30 years." ■

New Chair of Biological Chemistry and Molecular Pharmacology



Edward Harlaw, professor of genetics at Massachusetts General Hospital, was recently named chair

of the HMS Department of Biological Chemistry and Molecular Pharmacology. Harlaw joined the HMS faculty in 1991. Two years later, the National Academy of Sciences elected him a member, recognizing his work in tumor biology. At MGH, Harlaw has been instrumen-

tal in developing an internationally recognized group of investigators in cancer biology.

When Dean Joseph Martin announced Harlaw's appointment, he said that Harlaw envisioned strengthening the faculty's work in structural biology and creating a strategic initiative in post-genomic biomedical research. He also recognized Kevin Struhl for his interim leadership, noting that it was "crucial in stabilizing the department during the past year and a half." ■

The Schott Letter

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Forbes, Feb. 1996

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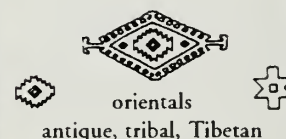
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Treatment for Managed Care Pain

DURING THE EARLY 1900S, MY paternal grandmother founded one of the first insurance trusts to provide medical care for employees and their families. With the support of my grandfather, a major employer in Poland's lumber industry, she acted in the spirit that one could do well by doing good. She believed it was both ethical and good business sense to invest in health care for workers and their families.

A mother of eight, my grandmother died shortly after my father's birth in 1916. In an unusual display of community, labor unionists and businessmen rubbed shoulders at her funeral. She left a legacy of trust for my father that became life-sustaining when World War II and the Shoah came; my father became a leader in the Underground, where knowing whom to trust and being trusted often spelled the difference between life and death.

Today in the United States, health care, rather than creating alliances and building communities, has sown mistrust and division among physicians, patients, and employers. As physicians, we can help to reverse this erosion of trust by educating the general public, business interests, and our political leadership about cost effective yet choice-preserving alternatives to managed care. The history of health insurance provides us with a useful starting point.

Health care insurance benefits came to the United States in the 1940s, when World War II increased the need for skilled labor at the same time that wage controls were in effect. By the late 1970s, however, fears of inflation and competition with employers in developing countries led U.S. employers to believe claims made by managed care organizations (MCOs) that rising medical costs were an indication that doctors and patients could not be trusted. Among the most attractive

of the MCOs' promises was that they could keep health care costs down.

Few could have predicted the consequences of these promises. MCOs, immunized from organizational malpractice by overly broad court interpretations of the Employment Retirement Income Security Act, have maximized their own profit margins, with little benefit to overall employer costs and much harm to the doctor/patient alliance.

As the new millennium approaches, employers must exercise leadership again, but this time in demanding quality health care. Recent polls show that quality of health care is one of today's hottest issues for voters. At the same time, state and federal courts have begun to move away from broadly upholding the malpractice immunity that MCOs claim. Moreover, the low American unemployment rate, combined with an increasingly high-tech, expensive-to-train job market, makes retention of skilled employees—including the preservation and enhancement of their health—increasingly cost effective for employers.

The cost controls of managed care undermine both quality and choice. MCO-sponsored capitation plans penalize health care providers for delivering services and spending time with patients. MCOs have restricted clinical practice in various ways: they have denied authorization for comprehensive services; limited prescribing options with dated formulas; and enforced economic credentialing of providers. Together these practices hinder effective treatment.

When managed care restricts acute and chronic pain services, for example, the inadequate treatment of pain can lead to increased impairment, loss of work productivity, higher employee turnover, and an increasing number of work-related disability claims from otherwise treatable conditions. Chronic pain patients who are denied services are

more likely to seek relief by pursuing workers' compensation claims, even if their conditions are unrelated to work.

Physicians are impeded even when their patients are experiencing acute pain after surgery. MCOs restrict the new pain-reducing medications, for example, which carry a lower risk of postoperative bleeding than more dated yet less expensive nonsteroidal anti-inflammatories.

Restrictions on prescribing also can diminish patients' and physicians' autonomy, which promotes the hope and healing necessary for a rapid recovery. When prescriptions and rehabilitation services are restricted, doctors often must make "tragic choices" about potentially dependency-enhancing, mobility-decreasing medications for postoperative pain and anxiety relief. The hazards of acute postoperative complications and residual chronic pain, complicated by depression and dependency, thereby increase. As patients suffer, their freedom to work and lead meaningful lives suffers as well. Both employer and social costs mount.

Too few employers are aware that many managed-care practices lead to cost shifting rather than cost savings. Physicians can educate employers about the hidden costs of managed health care. As my grandmother realized early in the century, with renewed employer leadership, a significant alliance of employers, physicians, and patients can emerge to support the social good of quality health care. ■

Harold J. Bursztajn '76 is associate professor of psychiatry and co-director of the Program in Psychiatry and the Law at HMS.

The author thanks Patricia Illingworth for her seminal work on the role of employer leadership in remedying the health care crisis. He also thanks William Bayer '79, Archie Brodsky, Andre Churchwell '79, Howard Corwin '58, Nancy Dearman, A. Stone Freedberg, Thomas Gutheil '67, Monticth Illingworth, John Kotter, Merloyd Ludington, Robin Paul, Lilly Scher, Elaine Shiang '76, Richard Sobel, Howard Stein, Alan Stone, and members of the HMS Program in Psychiatry and the Law at the Massachusetts Mental Health Center.

The Scum of the Earth: Microbiology's Latest Passion

THE NEXT TIME YOU CLEAN YOUR bathtub, consider what you have just washed down the drain in that swirl of water and detergent. It was actually a marvel of biology.

The scum that grows on wet bathroom surfaces, and on most surfaces submerged in water, is a biofilm. Under the recent scrutiny of molecular microbiologists, these layers have revealed

About four years ago, Roberto Kolter, HMS professor of microbiology and molecular genetics, was one of a few microbial geneticists to study how biofilms develop. Since then, the field has caught on so quickly that the National Institutes of Health is inviting proposals for studies on microbial biofilms that could eventually yield better ways to diagnose and treat biofilm-related infectious diseases. Other future applications could harness

biofilms for the more efficient production of products ranging from drugs to vaccines and food supplements, Kolter says.

In two papers published this year, research fellow Paula Watnick and Kolter help explain how *Vibrio cholerae* manages to survive between disease outbreaks. In another ongoing project, former research fellow George O'Toole and Kolter are unraveling the molecular steps of how *Pseudomonas aeruginosa* establishes the kinds of biofilm known to destroy the lungs of people with cystic fibrosis. A project funded by the U.S. Navy studies how bacteria dwelling on ship bot-

tonic state. While this approach represented a tremendous advance for modern microbiology, it also distracted microbiologists from a more organismic view of bacteria.

"Certainly we felt that pure, planktonic cultures were the only way to work," Kolter says. "Yet in nature, bacteria don't live like that." In fact, most of them occur in mixed, surface-dwelling communities.

Nomadic Microbes

Consider *V. cholerae*, the cause of cholera. It passes through its unfortunate human host within days. Therefore the organism must have spent most of its evolutionary history surviving in the outside environment. Scientists have found that *V. cholerae* thrives on crustaceans, insects, aquatic plants, and zooplankton.

In the June 1999 issue of *Journal of Bacteriology*, Watnick, Kolter, and research fellow Karla Fullner reported that this pathogen has in its genetic repertoire at least three distinct pathways through which it can set up shop on a given surface. "Surprisingly, this organism senses its environment—am I in the host, on sand in brackish water, or on a surface I can eat?—and turns on different sets of genes to establish itself in the envi-



MAPPING COMPLEX CITIES: In their research, Roberto Kolter and his colleagues have cast aside liquid cultures in favor of bacteria growing on surfaces.

themselves to be organized bacterial cities, with pillars that resemble houses and watery channels to carry in food and take out waste. They are complex, too: upwards of 300 different species of bacteria can inhabit dental plaque, a notorious kind of biofilm. They interact in specific partnerships, setting the biofilm abuzz with cell-to-cell communication.

toms corrode metals.

At first, however, studying biofilms marked a radical departure from previous work, says Kolter. Like most microbial geneticists, he had been trained in the tradition of Robert Koch and Louis Pasteur, namely that bacteriology is best conducted by studying pure strains of bacteria that swim individually through test tubes, in their plank-

PHOTO: GRAHAM RAMSAY

ronment," says Kolter. "Nobody had thought about it that way."

To colonize the human intestinal tract, *V. cholerae* is known to use a tiny appendage called the TCP pilus. Yet that pilus plays no role in establishing a biofilm outside the host, says Kolter. To live on glass—a laboratory surface that mimics silicon or sand—*Vibrio* uses another kind of pilus, dubbed MSHA. By contrast, growth on chitin—a component of the crustacean carapace that bacteria can consume—requires neither of these two types of pilus, but works through yet a third pathway.

In hindsight, says Kolter, it makes sense that *Vibrio* would build its biofilms in different ways depending on where it settles. Living on sand or on a plant requires all food to be shipped in from outside—a palatable option if nutrients abound in the liquid. If the liquid lacks nutrients, however, setting up shop on a crayfish's edible shell, say, would improve the bacteria's chances of survival.

A November 1999 article in *Molecular Microbiology* expands on this work on *V. cholerae* El Tor, the strain responsible for the current seventh pandemic. In the study, Watnick analyzed 80 mutant strains that cannot establish a proper biofilm.

Roughly half of those had defects in the genes needed to make the MSHA pilus, and some were in genes encoding components of the bacterium's flagellum, the whiplike tail that propels it while swimming. Kolter speculates that the flagellum helps *V. cholerae* overcome repellent forces it encounters as it approaches the surface, which result from different charges between the bacterium and the surface.

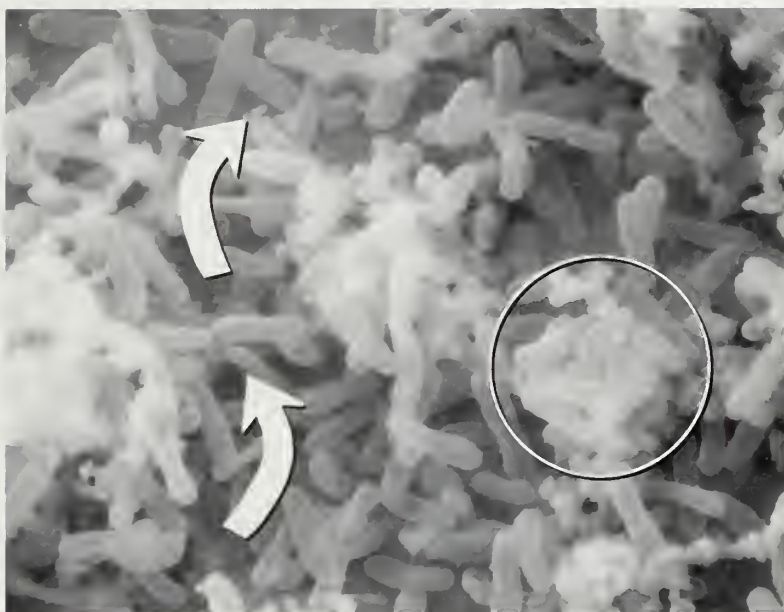
No Single-Cell Loners?

To Kolter, this work raises profound questions about how microbes evolve. Scientists used to think that bacteria have, for eons, developed in isolation from other species. But is it possible that they are really evolving in the close context of their biofilm community,

continually responding to how their neighbors are changing?

That notion echoes the idea of co-evolution advanced for flowering plants and bees, for example, and is related to the question of whether bacteria have evolved key properties of multicellular organisms, says Kolter. For some properties, such as the ability to differentiate, to develop into larger structures, and to exchange nutrients and waste products, the answer is yes. Though other properties remain unproved—for example, the division of labor as practiced in ant colonies—the research is heading in this direction. "We do not have all the data yet," says Kolter. "But this is precisely why this field is so exciting right now." ■

Gabrielle Strobel is a science writer for Focus.



BOTTOM DWELLERS: This scanning electron micrograph shows an area from a biofilm that has grown overnight on a steel grid. In these surface-bound bacterial communities, individual bacteria pile on top of each other form pillars called microcolonies (circle), which are separated by watery channels (arrows) that supply nutrients and flush out waste. The organism shown here, *Shewanella putrefaciens*, corrodes steel and has been isolated from oil pipes in Canada. Some biofilms are beneficial, like those used for bioremediation of toxic materials. But others cause recalcitrant infections of catheters, artificial joints, and heart valves.



Class Day

Physicians offer prescriptions for health care without boundaries

DURING THE CLASS DAY CEREMONY, U.S. Surgeon General David Satcher urged the Class of 1999 to contribute to the public health agenda, and student speakers paid tribute to those who have helped ensure their success.

Satcher issued a progress review of the Healthy People 2000 initiative and outlined major goals for Healthy People 2010, which will aim to eliminate health disparities based on race and ethnicity. Appropriately, Satcher addressed a richly diverse group—of the 175 students graduating, 18.3 percent were from underrepresented minority groups and 50.3 percent



1999

were women, making this the first time that HMS has graduated more women than men.

Satcher's call for greater equity in health care included the goals of achieving parity in insurance coverage for physical and mental ailments and implementing a "balanced community health system" approach to care in the United States. Improving access and quality of care for those in the community who need it, he pointed out, takes nothing away from those who already receive adequate services. "To the extent that we respond to the health needs of the most vulnerable among

us, we promote the health of the nation as a whole," Satcher said.

"One of the truly great things about being here today," Satcher added, "is to be able to help celebrate the 30th anniversary of affirmative action at this medical school."

The student speakers at the Class Day ceremony recalled sources of encouragement and inspiration that have guided them on the road to becoming physicians.

Dimitri Cassimatis '99 shared lessons he had learned during his clinical rotations. He urged his classmates to remember that each patient is the

center of his or her own universe and to treat each member of the hospital team with respect.

Alfredo Quiñones-Hinojosa '99 recounted his unlikely and dramatic transformation from a young migrant farm worker with big dreams but few prospects, to an HMS graduate embarking on a career in academic medicine. He emphasized the need for minority role models and mentors in academic medicine. "The pipeline to higher education," he said, "is not fully primed for minority students."

Excerpts of the speeches, which have been edited for publication, follow. ■

Prizes and

The following degree recipients were graduated with honors or special awards:

Jodie Lynn Babitt, cum laude
The High Density Lipoprotein Receptor, Scavenger Receptor Class B Type I (SRBI), Is N-Glycosylated, Palmitoylated, and Colocalizes with Plasma Membrane Caveolae

Dan H. Barouch, summa cum laude
 Leon Reznick Memorial Prize for excellence and accomplishment in research: *Augmentation and Suppression of Immune Responses to an HIV-1 DNA Vaccine by Cytokines and Costimulation*

Maren Kristina Batalden
 Robert H. Ebert Prize for excellence and outstanding accomplishments in the field of primary care medicine.

Sangeeta N. Bhatia, Donnella Simone Green, Robin R. May, Alfredo Quiñones-Hinojosa, and Thomas Dean Sequist
 The Multiculturalism Award to the senior in each Academic Society who has done the most to exemplify and/or promote the spirit and practice of multiculturalism and diversity.

Paveljit Singh Bindra
 Kurt Isselbacher Prize to the senior demonstrating humanitarian values and dedication to science.

Todd Victor Brennan, cum laude
The Role of Caveolar-Like Domains in Human T Cell Signal Transduction

Jeanette Adele Prescott Callahan
 The Community Service Award to the senior who has done the most to exemplify and/or promote the spirit and practice of community service.

Wing Sze Cheung, cum laude
Nitric Oxide Stabilizes Whereas Nitrosonium Enhances Growth of Filopodia by Rat Retinal Ganglion Cells in Vitro

David Tom Cooke, cum laude
Inhibition of Primary Engraftment of Xenogenic Donor Rat Bone Marrow Cells by $\gamma\delta$ Cells and NK Cells

Prajnan Das, cum laude
Modulation of NMDA Receptor Activity by Endogenous Production of Nitric Oxide

Jennifer Elizabeth DeVoe, magna cum laude
 Robert H. Ebert Prize for excellence and outstanding accomplishments in the field of primary care medicine.
 Richard C. Cabot Prize for the best paper on medical education or medical history: *Community Health: A Comparative Analysis of Historical Case Studies from Australia and the United States*

Benjamin Levine Ebert, magna cum laude
Transcriptional Regulation of the LDH A and Erythropoietin Genes by Hypoxia

Jennifer Joan Furin
 The NBI Healthcare Foundation Humanism in Medicine Award to a graduating medical student who consistently demonstrates compassion and empathy in the delivery of care to patients.

Kulleni Gebreyes
 Society for Academic Emergency Medicine Excellence in Emergency Medicine Award to a senior medical student who has demonstrated excellence in the specialty of emergency medicine.

Alexander Savio Ramos Guimaraes, magna cum laude
 Dr. Sirgay Sanger Award for excellence and accomplishment in research, clinical

investigation, or scholarship in psychiatry: *Functional Magnetic Resonance Imaging of Subcortical Activity in Humans*

Jimmy Ko
 The Gerald S. Foster Award in recognition of contributions to the student body by virtue of serving on a student/faculty committee including but not limited to the Committee on Admission.

Derek Yoshio Kunimoto, cum laude
Microbial Keratitis: A Multivariate Analysis of Risk Factors

Siavash Khavar Kurdastani, magna cum laude
 James Tolbert Shipley Prize for excellence and accomplishment in research: *Inhibition of Tumor Cell Growth by RTP rit-42*

Jennifer Shuwen Lee, magna cum laude
Survival After Breast Cancer in Ashkenazi Jewish BRCA 1/2 Mutation Carriers

Sue Y. Lee, cum laude
Mutation in the JH2 Domain of JAK2 Hyperactivates the JAK-STAT Pathway

Nancy Uan-Tsin Lin, cum laude
Regulation of Mouse Mammary Epithelial Cell Differentiation by Cyclin D1 and the Estrogen Receptor

Ming Lu, magna cum laude
Vascular Endothelial Growth Factor Gene Regulation and Action in Diabetic Retinopathy

David Andrew Mark, cum laude
T-Lymphocyte Costimulation in a Murine Model of Antigen-Induced Pulmonary Inflammation Airway Hyperresponsiveness

Elliot Melendez, cum laude
Mitochondrial DNA Analysis in Idiopathic Hypertrophic Cardiomyopathy; The New

Awards

England Pediatric Society Prize to the senior who, in the opinion of peers and faculty, best exemplifies those qualities one looks for in a pediatrician.

Ouzama Nzinga Nicholson, *cum laude*
Rose Seegal Prize for the best paper on the relation of the medical profession to the community: *A Longitudinal Study of HIV-1 Infected Hospitalized Patients in Senegal*

Robert Vincent O'Toole III, *magna cum laude*
A Virtual Reality Surgical Simulator for Measuring and Training Suturing Skills: Design, Implementation, and Validation

Subroto Paul, *magna cum laude*
Harold Lamport Biomedical Research Prize for the best paper reporting original research in the biomedical sciences: *Characterization of Heparin-Binding EGF-like Growth Factor (HB-EGF) Interactions with HER-4*

Alfredo Quiñones-Hinojosa, *cum laude*
Neuroprotection from Ischemia by Metabolic Inhibition

Konstantina Marka Stankovic, *magna cum laude*
Henry Asbury Christian Award for notable scholarship in studies or

research: *The Cellular Basis of Fluid and Electrolyte Transport in the Inner Ear*

Joanna Eowyn Steinglass
The Bemy Jelin '91 Prize to that senior who most demonstrates overall academic excellence with a career interest in pediatrics, oncology, international health, or psychiatry.

Kai Xia, *magna cum laude*
Activation and Regulation of Proto-oncoprotein Raf-1 Kinase Activity



Dean:

For two thousand five hundred years, doctors have taken an oath to affirm a commitment to their profession. This oath has served as tribute to their teachers and a contract with their community. Today the Harvard Medical School and Harvard School of Dental Medicine Classes of 1999 will recite an oath together; this oath reflects their philosophy that as future dentists and physicians, they are all embarking upon careers in Medicine. I now invite them to join this tradition.

class oath

Class:

Now being admitted to the profession of Medicine, before this assembly, my colleagues, and my patients, in accordance with the tradition of Hippocrates, I solemnly swear that I will strive to uphold the following:

As a doctor, I will use my skills and my knowledge only in the service of humanity.

I will promote health and healing, reduce suffering, and will not act contrary to the well-being of my patients.

I will be responsible for understanding my patients, maintaining confidentiality, and providing respectful and informed counsel and care.

As a teacher, guided by my experience as a student, I will pass on the Ethic, Science, and Art of my profession.

As a lifelong student, I will continue to ask questions, develop my skills, and expand my knowledge in an ongoing commitment to my patients.

This oath I take upon my honor.



Shaping the

The surgeon general demands equity in health care access

by DAVID SATCHER

AS WE LOOK TO THE FUTURE OF HEALTH care in this country, I want to encourage you to aim high and to continue dreaming. Langston Hughes, the poet, wrote, "Hold fast to dreams, for if dreams die, life is a broken winged bird that cannot fly. Hold fast to dreams, for when dreams go, life is a barren field frozen with snow." I hope that, as you leave here today, you will continue to dream, because we still have so much to do.

We're coming rapidly to the end of the country's Healthy People 2000



world together

program. We're moving in the right direction with many of our objectives. We've seen dramatic declines in cardiovascular disease deaths, breast cancer, and even areas such as motor vehicle deaths, homicide, and teenage pregnancy. Yet we still must confront the serious challenges posed by sedentary lifestyles, obesity, diabetes, low birth weight, and asthma, which has become an epidemic, especially in the inner city. And one of our most striking challenges is the disparity among different racial and ethnic groups.

As we prepare to launch Healthy People 2010, we have two major goals. The first is to increase the quality and length of life for Americans. In an

effort to improve quality of life, we've now added to that goal, concentrating on areas such as disability, chronic low back pain, and arthritis. Our second goal is to eliminate disparities in health on the basis of race and ethnicity. And this is where I need your help.

African American babies born in this country today are almost two and a half times more likely to die in the first year of life than their white counterparts. Native American babies are one and a half times more likely to die.

Cancer also highlights inequities. Vietnamese women living in the United States are five times more likely to suffer cervical cancer than other women. Asian Americans are three to

five times as likely to develop liver cancer. And African American men are twice as likely to suffer prostate cancer before the age of 65.

Diabetes illustrates well one of the disparities among racial and ethnic groups. Members of some Native American tribes are three times more likely to be diabetic than the majority population. Latinos are at least twice as likely to be diabetic. And African Americans have a high mortality rate from diabetes, probably because of an interaction with hypertension.

In addition, the AIDS epidemic, which, in this country, was at first predominantly an epidemic of white gay men, has become increasingly an

We don't need to take anything away from any one group to respond to the health needs of the most vulnerable among



epidemic of people of color, women, and young people. When the Centers for Disease Control and Prevention reported on AIDS at the end of 1997, 45 percent of the new cases were African American, 22 percent were Latino, and 23 percent were female. One-half of the new cases were in people between the ages of 13 and 24. In this age group, African Americans and Latinos were even more disproportionately represented, and females accounted for nearly half of those with AIDS.

Addressing disparities in health care is not a zero-sum game; we don't need to take anything away from any one group to improve the health status of another. To the extent that we respond to the health needs of the most vulnerable among us, we promote the health of the nation as a whole.

We must work toward a balanced community health system in this country—balanced in terms of health promo-

tion, disease prevention, early detection, and universal access to care. To support that system, we need a responsive research agenda, diversity in the health professions, and a new kind of partnership between public health and medicine.

Our health care system is big, but we have critical problems in access, cost, and quality. We spend \$1.3 trillion a year on health, yet less than 3 percent goes to prevention, and 44 million people are uninsured.

A balanced community health system would ensure that every child born in this country has an opportunity for a healthy start in life. It would focus on health promotion and disease prevention, reward healthy lifestyles, change attitudes toward mental health, and remove barriers to access.

One of the most important steps that physicians can take to promote the health of Americans is to focus on prevention. Only one-third of physicians even ask their patients whether they smoke, let alone recommend that they

stop. If they did, 2 million more people would stop smoking every year. If physicians promoted physical activity and nutrition successfully, we could reduce cardiovascular deaths by 50 percent and reduce the onset of Type II diabetes by more than 30 percent.

Another important step for physicians is to take a new approach to mental health. Every year, more than 50 million people in this country suffer a mental illness that is in some way incapacitating. Less than half receive treatment, and many end up homeless or in jail.

Together, we also have to remove the barriers to access, whether they be financial, geographic, or cultural. Even though minorities compose nearly 25 percent of the population, they represent 67 percent of people in underserved communities. Other people don't enjoy access because they live in environments of hopelessness, where health is not a high priority.

We learned recently that we in the health profession still have our own problems in dealing with race and gen-

improve the health status of another. To the extent that we
us, we promote the health of the nation as a whole.



der. A study in the *New England Journal of Medicine* revealed what happens when physicians are confronted with people of different races and genders. When simulated patients presented with identical cardiovascular disease symptoms, African American women were 40 percent less likely than white men to be referred for cardiac catheterization. Solving such inequities starts with diversity in our educational experiences.

I want to leave you with a story. Andrew Attaway, a writer for *Guideposts*, describes how much his two and-a-half-year-old daughter, Elizabeth, appreciates his reading to her. One of her favorite stories is that of the Good Samaritan.

You know the story: a man on his way from Jerusalem to Jericho falls victim to thieves and is severely beaten. He is left, bleeding, to die. And as he lies there, people pass by. A priest walking on the other side of the street sees the man, but he's

late for church, so he says, "I just don't have time to stop and help you." A Levite passes by. He isn't late, but he asks a question that we often ask on the road of life: "This is a dangerous curve. What will happen to me if I stop to help?" So he continues on his journey.

Then a Samaritan comes along. No one expects him to stop. He and the man are from different backgrounds; they are even enemies. But he asks himself what would happen to the man if he didn't stop. So he binds the man's wounds, takes him into town, and finds people to take care of him. He gives them money, assures them he will pay more when he returns, and continues on his way.

Attaway has read this story to his daughter many times, and so he quizzes her. He asks, "Elizabeth, where was the man headed?" And she says, "From Jerusalem to Jericho." "And what happens?" She explains that the man was

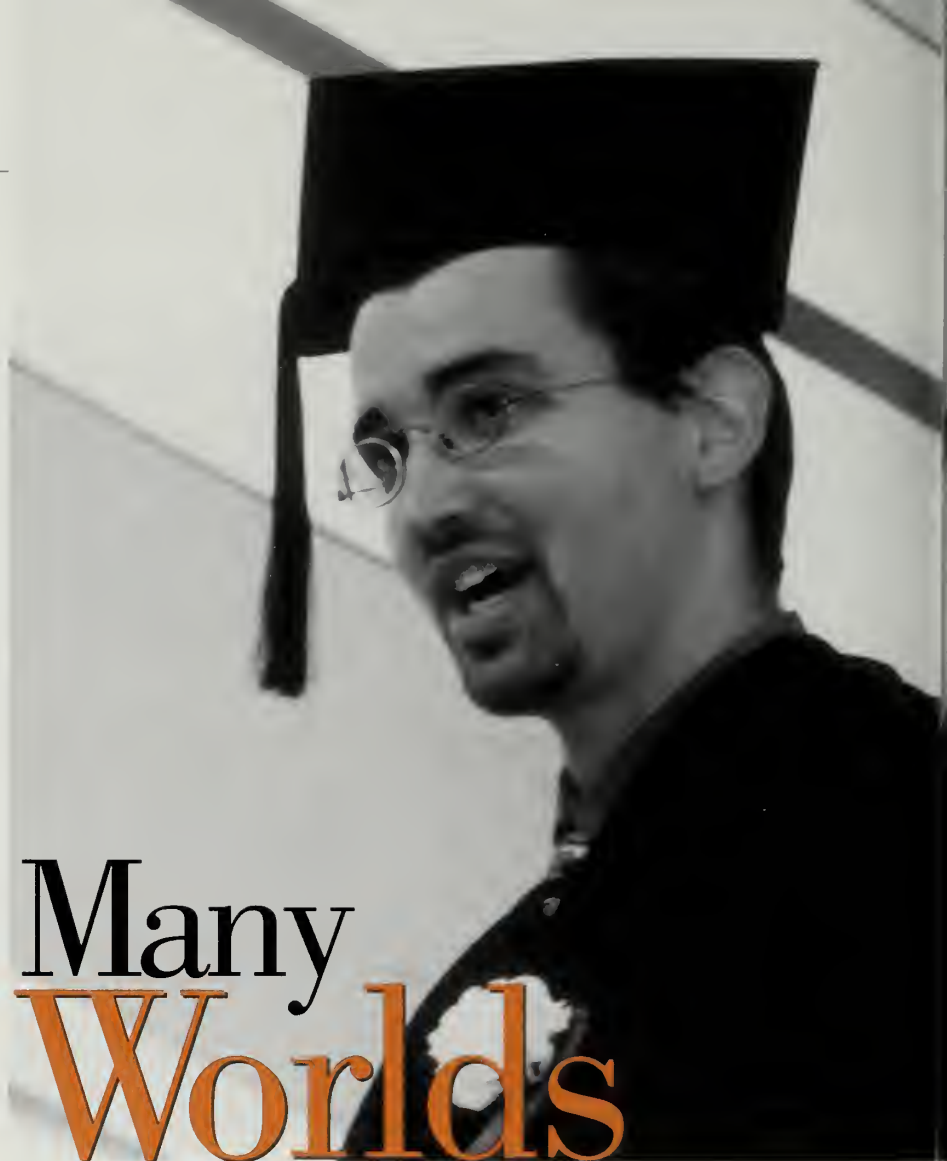
attacked. Then Attaway asks, "Did the priest stop?" And she answers, "Yes." So he reads the story again, and again he asks, "Did the priest stop?" And each time, Elizabeth says, "Yes."

Now, he's a parent. He's like many of us. He becomes concerned about his daughter. He starts thinking about the SAT and the ACT and the MCAT. So he says, "Elizabeth, what is wrong with you? I've read this story to you almost a hundred times, and every time I ask, 'Did the priest stop?' you say, 'Yes.'" And Elizabeth says, "But Daddy, I want the priest to stop. I want the story to be different."

Well, we're not children. We know we can't change the past. But together we can shape America's future. I look forward to working with you. ■

David Satcher is surgeon general of the United States.

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So Many Worlds

A physician describes how medical school inspired him to respect patients and coworkers

by DIMITRI CASSIMATIS

FOUR YEARS AGO I WAS PREPARING FOR A summer in Greece, where I would make the final decision between medical school and everything else in life. As each day passed, I found myself more and more drawn to HMS, for I both feared and was intensely curious about the people who would be there and the life I would lead.

With much trepidation, but with much more excitement, I forwent a career of fishing on the Mediterranean and chased the setting sun back to my

new home in Vanderbilt Hall. Right away I was shocked to find that everyone I met was easy to talk to, had interesting stories, and was just as afraid and curious as I was.

In the past four years, I have gotten to know many of the people in this class. What is amazing is that my initial impressions proved to be accurate. This class contains some of the most remarkable people I have ever met. But instead of flaunting their talents, or resting on their laurels, they consider themselves



older, I see what suffering life holds, and at times I wonder if it's worth it. But then I also see that this suffering is balanced out by times of laughter, love, music, and friendship. Billions of people live on this planet, and so many more were once here or will be in the future. We here today are just a few hundred of those people. But what we all share is this brief chance called a life to take our perceptions—what we see, hear, touch, taste, and smell—and turn them into a universe. Each of us is the center of our own unique world, a universe stored in an almost magical chemical code within our complicated nervous systems.

As doctors, we will see hundreds of universes each year. Remember how important that world is to the person at its center. In fact, remember that each person is a world. Our patients will all come to us expecting us to make them our first priority and to make only the most accurate and knowledgeable of recommendations.

It sounds like a daunting task, possibly even unachievable. But I have seen teachers who treat each patient with complete attentiveness and respect, as if that patient were the only one in their practice. They have set lofty examples, and what better way is there to be guided? Soon it will be our turn to guide and set examples, not just for medical students, but for our own children, and for those with whom we work.

I'd now like to paint a picture of typical morning rounds in a hospital. Nurses are racing around trying to tend to patients' needs, deliver medications, and answer doctors' questions. Patient transporters are pushing wheelchairs to move patients to x-ray, to surgery, to recovery. A custodian is patiently waxing a floor, which immediately gets scuffed again by a food cart pushed by the person delivering breakfast. Patients are trying to get back to sleep after being woken at 5:00 a.m., and construction workers are renovating the hallways for what seems like the third time this year. In the midst of it all, case managers, doctors, and medical students are making their rounds in white-coated packs, often a world apart from the commotion around them.

Somehow, a large part of that world remains invisible to many of us. I noticed this when I worked for a year as a patient transporter during college. Few doctors recognized me as a participant in the hospital; in fact, they basically ignored me. My coworkers, who were mostly older African Americans from the southwest suburbs of Chicago, were treated even worse. They often had to wait for a group of doctors to get out of the way, futilely saying "excuse me" as they tried to go by with a gurney.

There are so many important roles in hospitals, so many people who are not wearing white coats, johnnies, or scrubs, but without whom the hospital would fall apart. We, the doctors, are the leaders of the entire health care team, which includes janitors, cooks, and transporters. It is our responsibility to set the tone of camaraderie in the hospital, to *start* the showing of respect. Only then do we deserve respect ourselves.

Who can recall an awkward elevator ride? Staring into the closed space, with no distractions except the ticking of digital numbers, looking anywhere but directly into a stranger's eyes. I've done it, and more than once. The next time that happens, I would ask you all to smile and say hello. And if I could ask you to remember just one point I've mentioned, it would be the importance of greeting and giving an encouraging word to both strangers and those with whom we work every day.

In closing, I would like to give thanks for being a part of this class. In this group of people with whom I have shared the past four years, I have witnessed compassion, intelligence, drive, and a depth of character that has often made me feel inadequate, but has always inspired me to be more. It is one of the greatest honors of my life to be associated with this, the Class of 1999. More than the hallowed name of Harvard it is you who have made this an experience, and you who have made Harvard a name worth honoring. ■

Dimitri Cassimatis '99 is undertaking an internal medicine internship at the National Capital Consortium in Washington, DC.

to be regular folk still trying to make it. Like me, many of them have expressed wonderment at how they managed to fool the admissions committee. But here we are, about to graduate.

I have learned much from my experiences these last four years. They have warned me that even though I am young and healthy now, I will not always be. I have now witnessed the ending of a human life. I have met people whose lives have been completely changed in coping with their disease. Not one of us here today is immune from growing older and dying. I don't mean this in a hypochondriacal sense—I mean it in terms of the everyday reality of being mortal and not knowing what the future holds.

It's easy to forget what a gift a life is, how blessed we are to be able to own a body and be able to get up, move around, think, and have experiences. As I grow



Field of Dreams

A former migrant farm worker reflects on the power of dreams

by ALFREDO QUIÑONES-HINOJOSA

WHEN I WAS A BOY, MY FATHER USED TO say, “Aunque no tengas buena punteria, si le tiras al cielo, a lo mejor le pegas a una estrella”—even if you do not have good aim, if you shoot at the sky, you may hit a star.

The idea that our dreams are within our reach is not novel. My family constantly told me that with hard work, determination, and support, I could become the architect of my destiny.

I grew up in Mexicali, Mexico, where I developed self-confidence at an early age. To help my parents financially, at the age of five I both attended elementary school and pumped gas at their small gas station. Helping to shoulder my family's financial burdens developed my determi-

nation and inner strength—qualities for which I continue to be grateful.

My story in the United States began one night in January 1987. I packed the few belongings I owned and, with \$65 in my pocket, crossed the border illegally. I landed in the fields of California, where I became a migrant farm worker. I had immigrated to fulfill the dream that many people nurture of escaping poverty and one day returning home triumphant.

Reality posed a stark contrast. I spent long days in the fields picking fruits and vegetables, sleeping under leaky camper shells, eating anything I could, with hands bloodied from pulling weeds.

One day in the fields, I told a coworker that I wanted to learn English and



attend school. He laughed and said, "This is your fate—you will spend the rest of your life working in the fields." Those words were painful to hear. I realized that without English language skills, an education, and support, his prediction would likely come true.

I wish I could tell you what inspired me to leave the fields of the San Joaquin Valley that day. What possessed me to move without a job, the ability to speak English, or any knowledge of what would happen next? I think that my dream, although fogged by uncertainty, was more powerful than my fear of the unknown. It was an experience that has reminded me of what Henrik Ibsen once said, "Rob the average man of his life-illusion, and you rob him also of his happiness."

After the fields, I began to clean railroad cars in a railcar repair company in Stockton, California. I moved up to become a welder, a painter, a high pressure valve specialist, and a supervisor. Then, on April 14, 1989, an accident made me reevaluate my life. I fell into a railroad tank carrying liquefied petroleum gas and almost died. I woke up in the hospital and saw a person dressed in white; I felt reassured to know that a doctor was taking care of me. This brush with death gave me the strength to continue pursuing my dreams with a rejuvenated force.

I have learned that if our minds can conceive a dream and our hearts can feel it, the dream will be much easier to achieve. At night, I attended community college, where I began taking English as a Second Language classes. I also joined the track and debate teams. As a runner, I found that a race does not end at the finish line; rather, each time you reach the end a new race begins. And as captain of the debate team, I began to appreciate that teamwork is vital for success.

My mentors in community college helped me get to my next stop, the University of California, Berkeley, where I met more important mentors and role models. I learned from them that knowledge is better acquired by action than contemplation. I also learned that it takes much more than intelligence to succeed; it also takes discipline, dedication, determination—and a dream. When one of my mentors suggested that I apply to HMS, I thought he was a nice man but clearly living *la vida loca*.

After my acceptance to HMS, I hesitated to attend. I was not sure it was an institution in which a poor student from a small rural community in Mexico could thrive. During my visit to Harvard, though, I met two distinguished professors, Edward Kravitz and David Potter. From them and other mentors at Harvard, I have learned to view academic medicine as an opportunity not only to understand and improve the treatment of human diseases, but also to provide leadership and support to future physician-scientists. These outstanding professors embody the words of Plutarch: "The mind is not a vessel to be filled but a fire to be ignited."

The influence of such professors is critical, for members of minority communities have the highest dropout and lowest educational achievement rates in the country. The pipeline to higher education, especially to professional programs, is not fully primed for minority students. The quality of role models is high, but the numbers are low. Although members of minority groups make up nearly 25 percent of the U.S. population, in 1994 they accounted for only 3.7 percent of the nation's medical faculty.

Recent studies have found that African American and Latino physicians are much more likely to serve minority communities. They are also twice as likely to work in locations that the federal government calls "health workforce shortage areas." And minority patients are more than four times as likely as whites to receive their regular care from a minority physician.

The effort to recruit underrepresented students in certain institutions has now come under fire. The astounding effect that a "race-neutral admissions policy" has had in reducing the number of African Americans, Latinos, and Native Americans being admitted to schools in California and Texas, for example, suggests that the time is right to reevaluate race-sensitive admissions policies and to review their consequences over the past 30 years.

Recently, my friends and I spoke about Harvard's commitment to making our institution a leader in science, community service, and the recruitment of underrepresented students. We felt honored to be part of this family, and many of us have expressed hope that one day we will embody the values that this school has inculcated in us—the values of being a mentor, a role model, an outstanding physician, a colleague, a friend.

Like many other illegal immigrants, I arrived with only a dream. Now, with the support of my family, wife, daughter, friends, and mentors, and with the backing of such organizations as HMS, I believe I can make a strong contribution as a physician-scientist.

Today we graduate, ready to take on the world. Let us not forget that with the help of our loved ones and mentors—and through our own determination and dedication—we have been able to fulfill our dreams.

I can now accept and even welcome my fate of "working in the field" for the rest of my life—but in the field of academic medicine. ■

Alfredo Quiñones-Hinojosa '99 is undertaking an internship in surgery and a residency in neurosurgery at the University of California, San Francisco.



Blue sky and

Alumni discuss advances in fields ranging from xenotransplantation to genomic mapping

AT THIS YEAR'S ALUMNI DAY PROGRAM, "Blue Sky and Dark Clouds," more than 150 alumni gathered to hear about scientific developments and related social and ethical issues.

David Sachs '68, director of the Transplantation Biology Research Center at Massachusetts General Hospital, spoke about the urgent need for solutions to the organ shortage. Philip Leder '60, John Emory Andrus Professor of Genetics at HMS, talked about the beginning of the post-genomic era. Claire Broome '75, deputy director for science and public health at the Centers for Disease Control and Prevention,



addressed vaccine evaluation and electronic health information systems. And Raquel Cohen '49, professor of psychiatry at the University of Miami, shared her experiences in helping people cope in the aftermath of natural disasters.

The audience contributed to the discussion. Some questioned the wisdom of spending millions of dollars to devel-

medical research, teaching, and patient care find ourselves in an advantageous position. Biomedical research has never brought more anticipation of success and more promises for discovery of treatment for the major diseases that afflict humankind."

At the annual business meeting of the Harvard Medical Alumni Association,

\$80,000 and \$100,000, a burden that influences their career choices.

There was good news. "We are just about at our goal for alumni giving," said Tenley Albright '61, chair of the Alumni Fund. Albright announced that the Annual Fund was nearing its goal of \$1.4 million, and that the Alumni Association had raised \$4.9 million in all categories.

Kenneth Chin '74 presented the 25th reunion gift, a check for \$150,000 to be used for a scholarship in memory of five members of the Class of 1974. "We are still committed to exceeding our goal in the next year," he said, adding that the class hopes to raise a total of \$250,000 to fund the scholarship.

R. Lee Walton '49 and Thomas Parker '49 presented the 50th reunion gift. Eighty eight percent of the surviving members of the Class of 1949 contributed a total of \$387,000. Parker noted that the Class of 1949 was the first class to admit women, and he dedicated the gift to the 39 class members who have died.

During the meeting, Thibault also welcomed President Elect Sharon Murphy '69, saying, "I know that the route that will be taken under her leadership will continue the work of the Alumni Council."

"It's a tough act to follow," Murphy said, "but I'll certainly try my best, particularly next year when HMS enters the millennium."

Excerpts from the "Blue Sky and Dark Clouds" speeches follow. ■

dark clouds

op cures for the wealthy in industrialized countries while neglecting the basic needs of those in the developing world. Others expressed concern about the patenting of genes and the public dissemination of health records.

Dean Joseph Martin then greeted the group, calling the School's alumni a "potent force for good in the world.

"Through healing, teaching, and scientific discovery," Martin added, "each of you works to carry out our School's primary mission of alleviating human suffering caused by disease." Martin added that now, at the end of the millennium, "those of us involved in bio-

which preceded the symposium, Alumni Council President George Thibault '69 discussed alumni outreach, clinical education, and student debt.

Thibault said he envisioned the Council reaching out more to alumni across the country by holding regional town meetings and making connections over the Internet.

He emphasized the importance of clinical education in a time of increasing financial pressures and limited hospitalization, particularly "when our professionalism is under siege." And he pointed out that students' average debt at graduation tends to be between



A Change of Heart

Scientists scour the animal kingdom for possible solutions to the organ shortage

by DAVID H. SACHS

I FIRST BECAME INTERESTED IN TRANSPLANTATION more than 30 years ago while still a student at HMS. Since then, we have witnessed enormous success in this field. Paradoxically, this success has led to a new limitation on our work—a shortage of available donor organs.

There are now four to five times as many people on transplant waiting lists as there are available cadaver organs. The situation is actually worse than the numbers suggest, because people are placed on waiting lists only if they satisfy stringent criteria. For example, you cannot get a heart transplant in most transplantation centers if you are older than 65.

Although I certainly advocate increasing the number of people who register as potential organ donors, I fear that this measure alone is insufficient. Even in countries that have adopted presumed consent as the criterion for donation, the number of potential recipients is increasing at a much greater rate than the number of transplants performed. If we are to close this widening gap, we must find new solutions to the organ shortage.

One potential solution is the increased use of living donors, who have been used for bone marrow and kidney transplants for years. If you are unfortunate enough to need a bone marrow

Most parents would gladly donate their hearts to save their children's lives, but some limitations clearly must be imposed.

transplant, but lucky enough to have many siblings, chances are good that one will provide a match. Kidney transplants are performed even from unmatched siblings, but matched siblings allow transplants to be performed with minimal immunosuppression and excellent long term survival.

Kidney transplants pose only a minor problem, since people with normal renal function can manage just as well with one kidney as with two. The organ shortage has now led many transplant centers to use living donors for liver and even lung transplants. Thus, the mother of a child in need of a liver transplant may donate one lobe of her liver, an operation that is technically challenging yet successful because livers can regenerate.

Partial organ transplants are now being performed for both livers and lungs. These transplants are safe in the hands of competent surgeons but must be approached with caution. In some cases, partial lungs have been transplanted from parents into children with cystic fibrosis; sometimes portions of lung from both parents are used. Such transplants pose a risk to donors, however, so is it fair to ask parents to make such a donation? Most parents would gladly donate their hearts to save their children's lives, but some limitations clearly must be imposed.

Another potential source of organs is the xenograft—the use of a donor organ from a nonhuman species. Many organs from large animals can function physiologically as well as human organs. An experiment in nature has provided us with additional evidence that xenotransplantation is possible: the “nude mouse” has a mutation that leads not only to a lack of hair, but also to the lack of a thymus, which is the central organ of the immune system. In an experiment in which chicken skin was grafted onto the back of a nude mouse, the mouse grew

feathers. Clearly, xenografts can work if the T cell immune system is missing.

Of course, we would not seek to immunocompromise our patients to the same extent as nude mice, whose susceptibility to infections requires them to live in pathogen-free environments. We want to find a way to allow patients to lead normal lives after their transplants. Yet how can we achieve enough immunosuppression to allow a xenograft organ to be accepted without over immunosuppressing the patient and causing infections? This question is the subject of our current research directed toward induction of specific transplantation tolerance.

Another dilemma lies in determining which species should be used as the xenograft donor. Nonhuman primates would be the best donors, because they are closely related enough to humans phylogenetically that humans develop little natural antibody against their organs. Yet these animals have major disadvantages in terms of size and availability.

Chimpanzees and apes are the only nonhuman primates that are the right size to donate hearts to humans, but their status as endangered species precludes their consideration. The baboon is the only nonhuman primate that is available in sufficient numbers to be considered. Yet the largest baboons do not weigh more than about 50 to 60 pounds, and although their kidneys and livers are probably large enough, their hearts are not.

The use of nonhuman primates poses other problems, as well, such as the possible transmission of viruses for which we cannot yet screen. Finally, there is the ethical question of whether animals so close to humans should be used.

George Orwell noted with irony many years ago that “some animals are created more equal than others.” He was writing about pigs and, curiously enough, many

researchers have turned to the pig as a potential xenograft donor for humans. In my own laboratory, we began breeding a special type of miniature swine 25 years ago. When fully grown, these animals weigh between 200 and 300 pounds, so their size can be matched to that of any human recipient. (These swine are called “miniature” because domestic swine can weigh more than 1,000 pounds.)

There are pitfalls, however, to our using swine as donors. First, because pigs are phylogenetically quite distant from humans, humans have natural antibodies to pig antigens, and these antibodies cause hyperacute rejection of vascularized organs. Thus, within minutes to hours after anastomosing an organ from a pig into a primate, the organ is rejected by a massive thrombotic and hemorrhagic reaction.

We have been able to overcome this problem by absorbing those antibodies before the transplant. Other groups have overcome the problem as well, by genetically engineering pigs to decrease the reactivity of complement with natural antibodies, which is also essential in causing hyperacute rejection. Such transgenic pigs are now available, and their organs show remarkably prolonged survival, but neither the use of these transgenic pigs nor the absorption techniques we have used prevent the antibodies from returning and eventually causing loss of the donor organs. Researchers are now trying to produce new transgenic pigs with additional human genes that may downregulate the rejection reaction.

I believe the success we have seen in the transplantation field is just at the beginning in terms of its potential for alleviating human disease. ■

David H. Sachs '68 is director of the Transplantation Biology Research Center at Massachusetts General Hospital.



Brave New World

The identification of genes for a host
of diseases is raising new ethical issues

by PHILIP LEDER

WHEN DAN FEDERMAN CALLED ME TO suggest I speak about the blue sky and dark clouds of genetics, I asked, "What dark clouds?" and he answered, "You'll think of something, and if you don't, your audience will certainly think of something." I'm an enthusiast, and I want to state that right out.

Those of you who attended HMS before 1983, as I did, will not have had a course in genetics, and therefore the information that comes flooding in through the news media and the controversies surrounding genetic research may be somewhat new to you.



tified, and our great challenge now is to use genetics to explain the more complex disorders, which I would classify as hypertension, atherosclerotic heart disease, diabetes, and a range of mental illnesses. And with the enormous promise that genetics has brought to medicine have come new drugs that we could hardly have imagined as recently as 15 or 20 years ago.

But in the course of the past five years, the National Institutes of Health and other organizations have mounted a concerted effort to define the human genome in chemical terms. The Human Genome Project is an effort to determine, in the course of a 15 year period, the entire structure of the human genome. Commercial enterprises have joined this effort and are propelling it forward at an ever increasing pace. The effort will probably reach completion sometime during the next five years.

What will be the impact of having knowledge of the structure of the entire genome? It will effectively mean that every letter in the code that is incorporated into each of us—3 billion letters or nucleotides—will be known in its specific order and, as a consequence, the structure of every human gene will be known. Ultimately, when software and hardware tools are developed to handle this enormous amount of raw data and the information becomes accessible, our understanding of a range of pathophysiologic conditions will defy even our present imagination.

Our ability to diagnose disease will be vastly improved, as it has already been for many conditions. Our skill in developing pharmaceutical agents against disease will be enormously enhanced. And our capacity to fashion a therapeutic repertoire for a given individual based on his or her molecular genetic makeup will be a real possibility.

We will treat Patient A for breast cancer with this particular cocktail, for example, because we will have genetically determined that this form of therapy is appropriate for her. This information has enormous value—not simply to the patient, although the value there is great—but also to those with a financial

interest. So we have seen an unprecedented mixing of the academic community with the pharmaceutical, business, and entrepreneurial communities.

Now all of this can and should be to the good, but it raises a number of important issues. When you're able to define an individual's genetic makeup in detail and make reliable predictions about his or her ultimate fate, that's enormously powerful information.

In this country, our insurance system is based upon selecting low-risk people who are eligible for insurance policies at somewhat reduced rates and identifying people at higher risk in order to charge them higher premiums or deny them insurance altogether.

The ability to make those decisions at the genetic level becomes a potent and—to my way of thinking—destructive process. When you can carry a card in your wallet that has the entire structure of your genome on it, and you can insert it into an ATM machine that says, "Watch out for hypertension in 15 years," you're dealing with a powerful element.

Genomic mapping raises ethical issues in terms of privacy. When are physicians obligated to tell the relatives of a person with an inheritable and fatal disorder that they might be at risk for that disorder and that they should obtain appropriate therapy? I'm not even raising the ethical issues pertaining to prenatal diagnosis, and I cut it loose for the moment from the abortion issue and other ethical issues related to whether a human has the right to understand the genome, because I think that science and mankind demand that as an opportunity.

As you can see, genomic mapping is a field that's controversial, but moving ahead. It's providing the great engine by which we are learning about medicine, and at a rate that I believe is unprecedented in this century.

I haven't outlined for you many dark clouds, and I hope I have given you my blue sky vision. I'm going to leave it to you to raise the important questions. ■

Philip Leder '60 is John Emory Andrus Professor of Genetics at Harvard Medical School.

Since 1983, HMS students have had a comprehensive genetics course. I measure progress in the genetics field by looking at the cases we present in that course. When we began using case studies in the early 1980s, we chose genetic diseases whose molecular bases were not clearly understood. The genes corresponding to these diseases—such as Duchenne's disease, Huntington's disease, and even thalassemia—were not known, but over the last 15 years, each of these illnesses has been solved at the genetic level. The genes for hosts of genetic disorders have, in fact, been iden-



Treating the Population

An epidemiologist assesses vaccine evaluation
and new health information technology tools

by CLAIRE V. BROOME

I WILL TALK ABOUT THE “BLUE SKY AND dark clouds” in my two areas of professional interest—vaccine evaluation and electronic health information systems.

At HMS, I had wonderful models for treating patients. But before I got too far down the path of research directed toward individual patients, I was inspired to look into the epidemiology training program of the Centers for Disease Control and Prevention. The pneumococcal polysaccharide vaccine had just

been licensed and was recommended for the elderly in the United States. Yet the clinical trials had been conducted among South African gold miners, who had different disease patterns. They were young men, more likely to mount an immune response to the vaccine than the elderly. They also had had an acute exposure to the pneumococcus while working in the mines under crowded conditions.

With these discrepancies, how could we test this licensed vaccine’s efficacy

among the U.S. elderly? I developed a system to monitor serotypes causing invasive pneumococcal disease, to determine whether the serotypes in the vaccine would need to change over time. Then I realized that I could estimate the vaccine's efficacy by comparing the serotype distribution among people who had been vaccinated and those who had not. If the vaccine was effective, the proportion of vaccine-type disease in the vaccinated people should decrease. The results could be used to "treat" the whole country. I was hooked.

You may wonder when I'm going to get to the blue sky. I believe the brightest prospects for new vaccines

are polysaccharide conjugate vaccines. We've known for some time that for organisms such as the pneumococcus, *Haemophilus influenzae* Type B, and the meningococcus, the polysaccharide capsule is the protective antigen; if we can elicit antibodies to the polysaccharide, we can protect against meningitis and pneumonia. Yet these polysaccharides do not induce antibodies in infants, the group at highest risk.

Researchers discovered that when the polysaccharide was covalently linked to a protein carrier, it became immunogenic in children. Their first big success was with *Haemophilus influenzae* Type B vaccine, which is now used routinely in all U.S. infants. The 20,000 cases of meningitis and severe disease that this bacterium caused each year in this country have now fallen to fewer than 400 cases.

This technology has even brighter prospects when applied to the pneumococcus. The first clinical trial has shown 100 percent protection against meningitis and bacteraemia due to pneumococcus in infants. An even greater impact may come from effectiveness against more common syndromes; otitis media requiring placement of tympanostomy

tubes and pneumonia of unknown etiology both decreased. These new vaccines represent a breakthrough for children not only in this country, but also throughout the developing world, where pneumonia is the leading killer of children under five.

Now what of the dark clouds? In the developing world, cost is a major factor. We need to re-think how these products can be made available to the countries that most need them.

A more subtle dark cloud is what I call the "invisible benefits syndrome." People with prevented cases of polio aren't storming Congress demanding money for prevention. Even though we agree intellectually that an ounce of prevention is worth a pound of cure, we feel the urgency of the people who need the pound of cure.

People also no longer fear the diseases we have so effectively prevented, a trend that contributes to yet another black cloud for vaccines. You may be aware of allegations of adverse reactions in children being vaccinated; for example, Congress recently held a hearing on claims of a temporal association between the hepatitis B vaccine and multiple sclerosis. We have a risk-averse population that is swayed by anecdotes in the media and that does not understand the complexities of causality.

I'd now like to turn to my other professional passion: the analysis of new databases available through computerized health information systems. In this area, I think the blue sky is even bluer. I'm sure you have heard visionaries talking about such marvels as "smart cards," which will contain medical records, and the wonders of computerized medical records and instantly available databases. Several recent developments, such as the popularity of the Internet, are likely to result in a major leap forward in realizing the promise of health information systems. The system that connects you with Amazon.com can just as easily be used to link you with laboratory records from a distant commercial laboratory or a radiographic image file from your hospital.

Another trend is the development of national standards for electronic health

data interchange. The Health Insurance Portability and Accountability Act of 1996 mandated national standards for health administrative data, and the Department of Health and Human Services has been working with the private sector to establish these standards. This act also called for privacy legislation, and the secretary of Health and Human Services is now charged with implementing regulations to protect the privacy of individually identified health information.

The technology is rapidly evolving to take advantage of these opportunities. Relevant developments include advanced search engines, the analysis of large databases, and sophisticated encryption technology that protects the confidentiality of personal information.

The benefits for patient management will be evident when these systems become truly user friendly—when, for example, an ER staff can electronically retrieve a comatose patient's medical history. Another benefit may be physicians' ability to complement their clinical expertise with data about analogous patients' responses to various treatments.

When the population is your patient, these databases provide powerful tools, from rapid detection of infectious disease outbreaks to identifying consumer products associated with injuries. These databases would also permit a quick review of whether an alleged adverse reaction is associated with administration of a vaccine or is just an anecdotal temporal coincidence.

I certainly do not minimize the complexity of getting from here to there. Some of the dark clouds are just the technical and organizational difficulties involved in linking different databases in real time. The biggest dark cloud, however, is the need to protect individual privacy and convince those affected that their privacy is safeguarded.

Whether we're treating patients or populations, we all have a critical role to play in achieving the full promise of vaccines and information systems. ■

Claire V. Broome '75 is deputy director for science and public health at the Centers for Disease Control and Prevention.



The Aftermath

A psychiatrist reflects on nearly 30 years of helping people cope with natural disasters

by RAQUEL E. COHEN

NATURAL DISASTERS CHANGE THE WHOLE world in a few minutes or hours. Much of what we've learned about helping people cope with natural disasters can also be applied to manmade disasters—bombings, airplane crashes, and school shootings—all the events we read about every day in the newspapers.

In the last 20 years, natural disasters have killed at least 3 million people worldwide and caused more than 800

million to suffer personal tragedy, homelessness, illness, and economic loss. Long catastrophic disasters are major population based events that require intervention and assistance.

I first entered the field in 1970, when I was visiting my family in Peru, where I grew up. The director of the emergency assistance program, who knew I was a community and child psychiatrist, asked me an important question: How



do we help 10,000 children who have become orphaned in the Andes, when everything is destroyed? I did not have an answer.

When I returned to the United States, I consulted my colleagues and the literature. Only the U.S. Army distributed advice about dealing with stress and war casualties. I began talking to colleagues in Washington, DC.

When the Managua earthquake of 1972 leveled the capital of Nicaragua, I suggested to the head of the National Institute for Mental Health that we send a team there. After I returned, in 1974, Congress enacted a law to assist victims of disasters, which was the first time mental health was considered as important as sanitation, bridges, and vaccinations in the event of a natural disaster.

Because few psychiatrists were known to be interested in this field, I was asked to train disaster workers throughout the country. I began to set forth principles of community psychiatry and preventive medicine, and I became involved in helping professionals mobilize to develop relief teams that could deal with mental health issues.

I have since helped communities in Colombia recover from a volcano eruption that buried 10,000 people. I have also dealt with tornadoes, floods, and hurricanes—Hugo and Andrew were in my own backyard. Last year I worked in Central America in the aftermath of Hurricanes Mitch and George, and I'll soon travel to train workers in Colombia, site of a recent major earthquake. For decades now, I've participated in an evolving field that has slowly defined which principles of psychological help should be an integral part of disaster relief programs.

Parallel to our training sessions are the scientific aspects of our work—the beginnings of research on stress and coping.

There are three kinds of coping mechanisms on which we can draw: emotional, cognitive, and instrumental, which includes our lifestyle, employment, and family relations. For instance, Hurricane Andrew eliminated all traffic lights in Miami. You can imagine what it felt like to drive through a city with dead, swaying lights. This is just a tiny example of how natural disasters can disrupt everyday life.

One colleague who took advantage of Hurricane Andrew to conduct research found three interesting factors that allow people to cope with disasters—a good support system, an optimistic personality, and an awareness of one's surroundings and opportunities. Another colleague has published research indicating that the most important variable in psychological recovery is whether the

disaster victim's house has been returned to habitability.

Natural disasters cause incredible human suffering worldwide. In the United States, fortunately, we now have a series of coping techniques we can use. This country also has one of the best postdisaster programs, and we have teams trained to move rapidly with emergency agencies such as the Red Cross, allowing us to deal with both natural and manmade disasters, such as plane crashes and the Columbine High School shootings.

We have learned several principles. We know, for example, that there are psychological variations on coping, and we have to intervene differentially. We also know that citizens who have been affected don't go to clinics, because they don't see themselves as mental health patients. We need to find them wherever they are—living in shelters, salvaging possessions from destroyed homes, standing in line to obtain loans.

Another principle is that not all people are healthy, happy, and ready to deal with disaster. You will find sick people—people who are receiving chemotherapy for cancer, HIV patients, people who just lost a dear one—and that means that everyone has to be dealt with differently.

In addition, we have to consider the caregivers, who also are affected by the tragedies they see. Sometimes they must pick up body parts, and, as is often true with airline disasters, put bodies in bags to be flown elsewhere. Everyone—firefighters, police officers, emergency workers—needs help in these situations.

Everywhere in the world I've gone, the first words I hear are: "I don't know what to do. I have no energy. I can't sleep. How do I even start?" We can help people recover their sense of capacity and decrease their sense of powerlessness, which is one of the most terrible effects of a disaster. Our support and psychological techniques help them understand that there are steps we can take together. ■

Raquel E. Cohen '49 is professor of psychiatry at the University of Miami.



Medical Milestones

Members of the Class of 1974 review
research advances in areas ranging from
pain management to imaging techniques

by MISIA LANDAU

THE NEWLY MINTED GRADUATES OF THE CLASS of 1974 might have found it relatively easy to put off considering their own mortality. Yet maintaining the ruse is becoming increasingly difficult 25 years later.

"Baby boomers are realizing that we're not going to live forever," said Mitchell Max, one of a series of 1974 graduates to speak at the class symposium. "We just don't want to be miserable in our old age. The upside is that doctors, who for decades sought to treat the underlying cause rather than the manifestations of disease, are now focusing on pain and other symptoms."



Class Day Speaker Kenneth Chin (left) attends the Alumni Day symposium; Mitchell Max (below) speaks about advances in pain management

clinical director of the Division of Infectious Disease at Brigham and Women's Hospital. While it is true that many infectious agents have been brought under control, new and emerging pests have been gaining ground. "The war with infectious disease is being won, but it is the germs who seem to be the victors," Maguire said.

Maguire was followed by Max, who described the ways in which discoveries about the basic physiology of pain have led to new treatments. Antidepressants, such as norepinephrine re-uptake inhibitors and NMDA receptor blockers, are being clinically tested for pain relief in patients with diabetic neuropathologies and shingles.

Burn patients suffer enormous pain—those who survive, that is. Survival of burn patients has increased as a result of new methods for growing and grafting skin. Ten years ago, Carolyn Compton and her colleagues cultured small pieces of skin from two young brothers who were covered with burns over 98 percent of their bodies. The postage stamp sized pieces were grown into two square meters of skin, which engrafted and saved the brothers' lives.

Another breakthrough occurred when Compton discovered that skin taken from other people, and in particular, circumcised foreskins, could be used on burn patients. "I ran around collecting foreskins," said Compton, who is director of gastrointestinal pathology at Massachusetts General Hospital and chief of pathology at Shriners Burn Hospital. She is currently bioengineering skin and is meeting with surprising success. "The synthetic skin makes beautiful epithelium with basement membrane," she said.

and her colleagues have been performing surgery in utero to correct congenital defects such as spina bifida, which affects one in a thousand live births. She played a brief video showing how they opened the abdomen and uterus of a mother and placed a human epithelial cell patch over the exposed spinal cord of a 25 week-old fetus. "This patient was born with a good outcome," she said. In the future, she added, doctors may use minimally invasive surgery guided by radiological techniques to perform the procedure.

An Imaging Revolution

"Radiology was once merely an afterthought for the nonradiologist," said Kenneth Chin, associate clinical professor of radiology at the UCLA School of Medicine. He described the enormous revolution in imaging techniques that has occurred over the last 25 years, beginning with the CAT scan. Among the technologies paraded were MRI, PET, SPECT, ultrasound, and power Doppler imaging.

"Of all the methods I've described, none has captured the imagination as MRI has," Chin said. "The brain is visualized in such an incredible fashion that it's almost similar to the pathological specimens we saw in medical school." ■

Misia Landau is senior science writer for Focus.

How Goes the Battle?

But as the first speaker made clear, not all medical battles have been entirely successful. In the 1970s, researchers thought they had won the war against infectious disease, said James Maguire,

Frontiers in Surgery

Cultured epithelium can be a lifesaver not just for burn patients but for fetuses in distress, said Beverly Coleman, professor of radiology at the University of Pennsylvania Medical Center. Coleman



A history of

1782 Harvard Medical School is founded in the basement of Harvard Hall in Cambridge, with three professors—John Warren, Benjamin Waterhouse, and Aaron Dexter—presiding over two students. Their teaching tools include a microscope, a human skeleton, and a set of human veins and arteries pumped up with wax.

1820 Walter Channing, HMS professor of obstetrics and medical jurisprudence, declares, “It is obvious that we cannot instruct women as we do men in the sci-

ence of medicine; we cannot carry them into the dissecting room and the hospital; many of our more delicate feelings, much of our refined sensibility must be subdued, before we can submit to the sort of discipline required in the study of medicine; in females they must be destroyed.”

1847 The President and Fellows of Harvard College hold a special meeting about the issue of admitting women to HMS and conclude that to do so would not be “advisable.” Harriot Kezia Hunt writes to

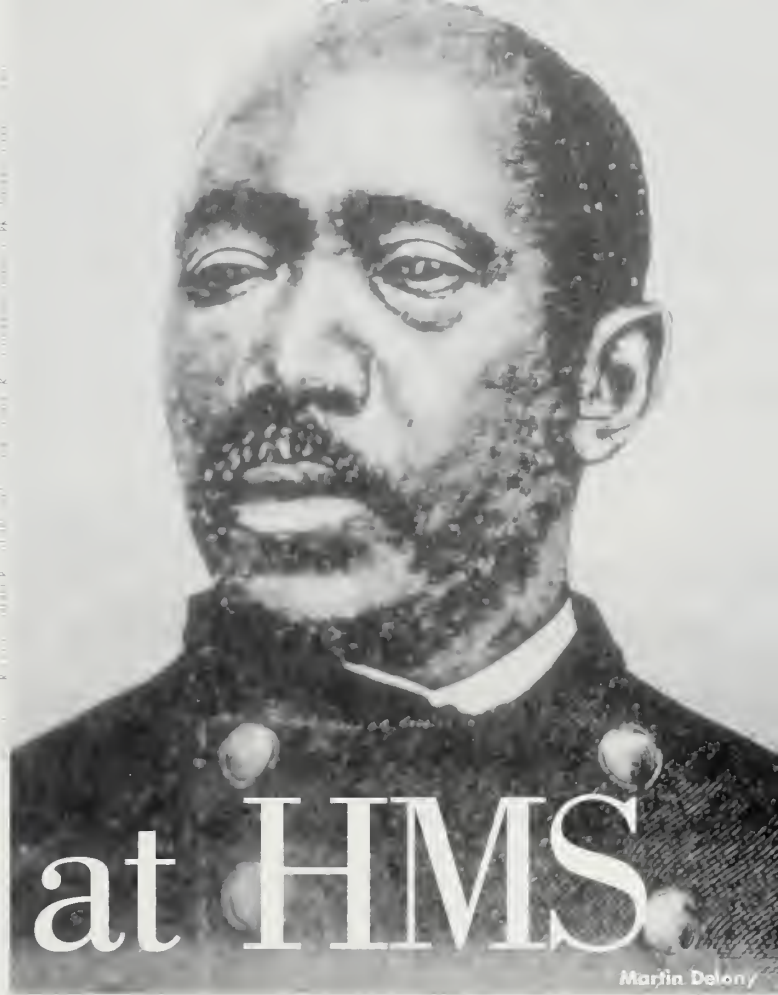
Oliver Wendell Holmes asking permission to attend lectures at the Medical School. Holmes supports her admission, but the Corporation responds that it would be “inexpedient” to reconsider its vote.

1850 Elizabeth Blackwell graduates from Geneva Medical College, becoming the first woman to earn a medical degree in the United States. Encouraged by Blackwell’s success, Harriot Hunt again applies to HMS. The medical faculty votes that she be admitted to the lectures, and

Harriot Kezia Hunt

After long and bitter struggles,
HMS opens its doors to admit
women and people of color

diversity at HMS



the Corporation affirms its vote. Illness prevents Hunt from picking up her lecture tickets; in the interim, the medical students protest her admission, objecting to possible "feminine interference" with their studies. They declare that no woman of "true delicacy" would be willing to attend medical lectures with men, and that they are unwilling to mix with any woman who "unsexed" herself and "sacrificed her modesty." Hunt never attends HMS; intense faculty and student threats against her end only when faculty leaders meet privately

with her and convince her not to attend.

Three black men—Martin Robison Delany, the "Father of Black Nationalism"; Daniel Laing; and Isaac Snowden—also petition to take lectures at HMS. One small but vocal group of HMS students protest the admission of the three, complaining that they cannot be identified as fellow students "with blacks whose company we would not keep in the streets, and whose society as associates we would not tolerate in our houses." The faculty refuses to succumb to the student pressure,

and the three men, who have already bought tickets to the lectures, are allowed to attend. But on December 26, it is voted that the three students not be admitted after all, and they are barred from continuing after the first semester.

1866 Luey E. Sewall and Anita E. Tyng, graduates of women's medical colleges and staff members at New England Hospital, apply for admission to HMS. Dean George Shattuck politely refuses their application.

1867 Susan Dimock and Sophia Jex Blake, students at New England

Hospital, request admission to HMS; they, too, are turned down.

1869 Four years after the end of the Civil War, Edwin C. J. T. Howard becomes the first black graduate of HMS.



Susan Dimock



Sophia Jex-Blake

1878 Marion Hovey of Boston offers HMS \$10,000 on the condition that it enroll women. HMS declines her offer, but the faculty votes 11 to 7 in favor of admitting women "provided a sufficient sum of money can be obtained"; \$200,000 is suggested.

1880 In a letter signed by physician Marie Zakrzewska, the New England Hospital Society offers HMS \$50,000 on the condition that it admit women. The letter also urges that the money be held in trust until the fund is large enough to cover the costs of the medical education of women. The Board of Overseers votes to accept the offer, but reevaluates its decision after some faculty members threaten to resign. In a 13-to-12 vote, the overseers reject the offer.



Marie Zakrzewska

1896 Ida Henrietta Hyde joins the Department of Physiology, becoming the first woman to engage in scientific investigation at HMS.

1900 By 1900, women constitute 18.2 percent of all physicians in Boston. Many of these female physicians were educated in women's medical schools.

1905 Black students at HMS customarily arrange for referrals from the black physicians of Boston and Cambridge, because the School requires its students to handle a certain number of obstetrical cases, yet many patients at nearby clinics refuse to be treated by black students. HMS Dean William Richardson calls these "circumstances which are beyond the jurisdic-



Women's Medical College of Pennsylvania, circa 1903

tion of the School, and which other colored students have heretofore cheerfully accepted." A young black HMS student, E. D. Brown, acknowledges that HMS cannot force patients to accept an unwanted intern but petitions the dean "to put it up to the patients and leave me to face whatever difficulty might arise."



Ida Henrietta Hyde

THIRTY YEARS OF AFFIRMATIVE ACTION

Thirty years of affirmative action is not enough. This was the message that surfaced in the first Alumni Week symposium celebrating the 30th anniversary of affirmative action at HMS. Although the symposium reviewed the past, its political and emotional weight pressed heavily on the future.

"We meet to reaffirm our commitment to diversity in the face of a cascade of savage attacks based upon mindless prejudice, deliberate distortion, and refusal to examine the evidence," said Leon Eisenberg to start the program, "Thirty Years Later: Affirmative Action at Harvard Medical School."

He recounted events leading up to the establishment of affirmative action. On April 4, 1968, in an atmosphere of high expecta-

tions for civil rights, the Reverend Martin Luther King, Jr. was assassinated. "The facade of integration had been stripped away," said Eisenberg, the Presley professor emeritus of social medicine and of psychiatry. Within days, junior faculty members Jonathan Beckwith and Edward Kravitz had organized a small group to respond to the "moral crisis." Nine faculty members—including current members Beckwith, Kravitz, Eisenberg, David Patter, and Edwin Furshpan—signed a formal proposal to create an affirmative action program at the Medical and Dental Schools. They submitted it to the faculty at a meeting on April 26.

The resolution called for 15 African American students to be admitted the fall-

ing year. After some debate, the measure passed, with part of the agreement being an increase in class size from 125 to 140. Ultimately, the schools accepted 18 black students to enter in 1969.

Still, "it wasn't as if everyone was for this program," said the second speaker, Alvin Paussaint, HMS faculty associate dean for student affairs, who came to the School in 1969. "Some felt there should be more minority doctors—but why Harvard?"

Affirmative action initiated a series of transformations on campus, according to Paussaint. HMS put support services in place for the minority students: "We hired a study skills instructor before the students arrived," Paussaint said. The School also had to address questions of fitting in and understanding the environment—both at HMS and in Boston, where racial tension was high.

1912 William Augustus Hinton, a pioneering syphilologist and the first black American to publish a medical textbook, is graduated from HMS. Although he has finished in three years and has maintained an outstand-

ing scholastic record, he is denied a position at the Harvard teaching hospitals. He begins working as a volunteer assistant in the Department of Pathology at Massachu-



William Hinton



Louis Wright

1915 Louis Tompkins Wright, who later becomes the director of surgery at Harlem Hospital and the first black police surgeon in New York City, is graduated from HMS.

While a third-year student, he is informed that he cannot perform deliveries at the Boston Lying-In Hospital because he is "colored." Wright is outraged; his classmates support him, and he ends up participating in the obstetrical rotation.

1919 Alice Hamilton becomes the first woman to join the faculty when she is appointed assistant professor of industrial medicine. With her appointment, she agrees to forgo some of the symbolic expressions of a faculty rank, such as access to the Harvard Club, tickets to football games, and appearance at the commencement exercises. (Each year, a handwritten warning on her invitation to commencement reads: "Under no circumstances may a woman sit on the platform.") When she retires



Alice Hamilton

15 years later, she is still an assistant professor—the only assistant professor emerita (or emeritus) at HMS.

1927 After decades of graduating no more than one black student per year (and frequently no black students at all), HMS confers degrees on three black men in one year—a record that is not bested until 1973.

1928 Thanks largely to the efforts of HMS Dean David Edsall, who

The keynote speaker, Derrick Bell, visiting professor of New York University Law School, said that progress in affirmative action is "tough, tentative, and temporary." He said opposition to affirmative action grew with the downturn in the job market in the early nineties, when whites began blaming scapegoats. "Affirmative action is one of the traditional scapegoats," he said.

In the United States, Bell added, "whiteness is a treasured property right," a privilege that requires all whites to identify with whites at the top of the economic ladder. Poorer whites took out their frustration by hating blacks. He pointed out that a common theme in the assimilation of white immigrants to this country is the disparagement of blacks. He warned that technology is transforming our economy and endangering jobs, and people may turn their frustration into racial violence.

"We have to begin on honest debate about race," Bell said, adding that much of this debate should focus on being white in America. "Do whites have enough love, respect, and patriotism to live with one another without using blacks as some form of societal glue?"

In the final talk, Alone Shonks, assistant dean for educational administration and finances, presented results of a survey she conducted of minority medical and dental alumni to determine what they are doing now. In the last 30 years, she said, 717 members of minority groups have graduated from the schools. She has information on the 305 who responded to her questionnaire and information from public databases on another 356, bringing the total to 661. Among the 305 respondents were three deans; one associate dean; five department chairs, seven division chiefs; 13 full profes-

sors; 26 associate professors; and 72 assistant professors.

Shonks described some of the alumni's activities. Hermon Taylor '80, for example, is heading up the Jackson Heart Study, which will involve as many as 6,500 African Americans from Mississippi. "This commitment to serving the underserved deserves mention," Shonks said.

"I wish I could tell you that one of our underrepresented minority alumni from the last 30 years is a full professor here at HMS or at HMSM," Shonks added, "but that hasn't happened yet."

In the discussion period that followed, Eisenberg addressed that point, saying representation of minorities and women on the faculty is the next issue to be considered. ■

Robert Neal is the editor of Focus.

respects the talents of the Jewish physicians practicing in the area, HMS becomes affiliated with Beth Israel Hospital. This affiliation comes several years after a consultant hired by Beth Israel to explore the possibility of affiliation with Harvard had told the hospital's trustees, "Don't even think about it." Although no official quota exists, it is commonly believed that the number of Jewish students admitted to HMS each year is deliberately limited. This assertion will persist for a number of decades.

1944 Faced with grave staff shortages in the teaching hospitals due to World War II, the governing board of Harvard University votes to admit women to HMS, but only on a ten-year trial basis.



1945 Twelve women enroll at HMS—the first to be admitted in the School's 163-year history.

1949 The first women are graduated from HMS, drawing media coverage from such publications as the *Boston Globe*, which reassures its readers that the 12 pioneer graduates "can all cook on the kitchen

range as well as on a Bunsen burner." The caption for an Associated Press Wirephoto states, "Harvard's Sweet Girl Graduates—Four young women sit on the steps of Widener Library after receiving their medical degrees today, the first ever awarded to women in the history of Harvard Medical School."

William Hinton becomes the first black man to attain a full professorship at HMS—one year before his retirement.



1951 Surgeon Mildred Jefferson becomes the first black woman to be graduated from HMS.

1958 Women students are admitted to the Vanderbilt residence halls, but only to occupy the Deanery, separated from the rest of the dormitory. Full admission to Vanderbilt will wait until 1972.

1961 Grete Bibring is promoted to clinical professor of psychiatry, becoming the first woman to attain the rank of full professor at HMS.



REFLECTIONS FROM THE FIRST WOMEN

In the past 50 years, HMS has gone from graduating its first women to graduating its first class with more than half women.

While progress has undeniably been made, more needs to occur, said speakers at the Harvard Medical Women's Forum, held on June 9 in conjunction with Alumni Week. Although women comprise 50.3 percent of the Class of 1999, they still make up just 9.3 percent of full professors at HMS.

"Clearly the population of HMS and its affiliated hospitals has undergone a transformation over the last 100 years," said Nara Nercessian, assistant dean for alumni affairs and special projects.

The forum was the third major event during the last several years that has celebrated the women of the Class of 1949. Four of the 12 women who graduated with that historic class were on hand for the forum. Since the Class of 1949, 1,704 women have graduated from HMS.

Raquel Cahen, now a professor of psychiatry at the University of Miami, told the 200 or so audience members that when she was a student at HMS, she never believed that she'd be back someday talking about her experiences as a pioneer.

Cahen said the female students had to live in a small boarding house instead of in Vanderbilt Hall with the male students. One

daily reminder that they were entering a male bastion, she said, was the men's struggle with what to call them.

"People didn't know how to address us," Cahen said. "The teachers addressed the class as 'gentlemen.'"

Still, Cahen said, she feels lucky to have been exposed to the institution's talented teachers. Today, she added, she and other women can tell their daughters that they aren't limited in their roles in life.

"Tell them, 'Yes, you can have a career. Yes, you can have children, and yes, you can be a wife,'" Cahen said.

Louise Clark, another member of the Class of 1949, said she remembers that a paucity of ladies' rooms was a day-to-day difficulty. "We knew that half the faculty didn't like women and that was that," Clark

1968 On April 4, the Reverend Martin Luther King, Jr. is assassinated. Within three days of the assassination, HMS junior faculty members Jonathan Beckwith and Edward Kravitz have organized a small group to respond to the "moral crisis." Nine faculty members sign a proposal to create an affirmative action program. On April 26, following debate about the feasibility of a "quota," the proposal is

approved at a faculty meeting. Within a month, the faculty is presented with a committee report that calls for the establishment of "at least 15 scholarships for disadvantaged students." The decision is made to increase class size from 125 to 140, so there will be no reduction in the number of places available for non minority applicants. Ultimately, the School enrolls 16 black students in the Class of 1973.

That same academic year, among the 9,863 first-year students enrolled in U.S. medical schools, only 266 are black—2.7 percent of the total enrollment. Native Americans, Mexican Americans, and mainland Puerto Ricans constitute a grand total of 26 students nationwide.

1969 The HMS Office of Recruitment and Retention (later renamed Recruitment and Multicultural Affairs) is established. Although the School initially focuses on increasing black representation, it soon broadens its efforts to include other underrepresented groups, such as Native Americans, Mexican Americans, and Puerto Ricans.

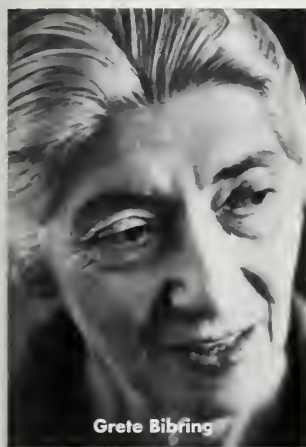
Alvin Poussaint joins HMS as faculty associate dean for student affairs in time to welcome the Class of 1973. Poussaint is recruited to HMS after faculty member Leon Eisenberg conducts a national search, at the request of the dean, to find additional senior minority faculty members sensitive to the needs of incoming minority students.



Alvin Poussaint

Poussaint goes on to play a pivotal mentoring role for students and colleagues, a role that continues to this day.

1976 The School's affirmative action program weathers a painful attack in the *New England Journal of Medicine* by a senior faculty member, who questions whether standards are being stretched to award diplomas to students "unable to handle the material." Dean Robert Ebert responds with a public defense of the competence of the minority students and the integrity of HMS standards. His statement concludes, "The medical



Grete Bibring

said. But many faculty, in fact, did welcome women into the student body. "We had some fabulous mentors—they didn't have to be female," Clark said.

The celebration of the Class of 1949 began four years ago with events marking the anniversaries of the admittance of the women and their arrival on campus.

Speakers described several contemporary programs intended to help women rise into higher-level positions at the School and at affiliated hospitals.

"A lot is happening with women," said HMS Dean for Faculty Affairs Eleanor Shore. "All the programs are attempting to make life a little more supportive for women at critical points in their careers. One example is the 50th Anniversary Program for Scholars in Medicine."

The Scholars in Medicine program, now in its fourth year, has already awarded 67 fellowships of \$25,000 each to allow protected time for academic work or research assistance. The program is intended to help junior faculty who are juggling responsibilities such as child care, care of an elderly relative, or a heavy clinical workload, to enable them to do more of the work so important to advancing in academia.

Nancy Torbell, director of the Partners Office for Women's Careers at Massachusetts General Hospital, said her office was set up specifically to support women faculty and help them develop their careers. The goal, she said, is to get more women in the faculty ranks and in leadership posts.

Anne Bryont, who was graduated from HMS this year, said the results of the Class

of 1949's opening of the School to women was apparent on her first day of classes.

"When I walked into class on the first day, I looked left and right; half the class were men and half were women," Bryont said. "It is empowering, it is energizing, and you feel it doesn't matter what sex you are. You feel you can do anything."

Bryont continued, however, and said when she looked to the front of the class, it was usually a white man who was teaching, which illustrates the task still ahead.

"As a student, I think it's been wonderful, it's been amazing...and we know we can look ahead to much that needs to be done," Bryont said. ■

Alvin Powell is a contributing writer to the Harvard University Gazette.

school reaffirms its commitment to the education of able minority students."

1978 HMS Dean Daniel Tosteson convenes a committee to ensure that the School's minority admissions policies are congruent with the U.S. Supreme Court's landmark Bakke decision. After HMS officials learn of the School's precarious legal standing, they make immediate provisions for the class matriculating in 1979. A process is created that allows the admissions committee to pay special attention to race and adversity through a subcommittee system. Applicants then enter a merged competition in which the main admissions committee makes the final determination on all candidates. This process, which is still in effect, succeeds in helping HMS admit a diverse class every year.

1983 The organization that will become the Hinton Wright Society is founded to serve as a research society for minority HMS students and to introduce younger members of the minority community to biomedical research opportunities.

1988 The Coleus Society of the HMS Alumni Association is founded to foster closer ties among underrepresented HMS graduates. The society takes its name from the multi-colored, enduring coleus plant.

1994 Women make up 53 percent of the entering class at HMS,



marking the first time that women outnumber men.

The Four Directions Summer Research Program is established by Native American students at HMS who are concerned about the status of Native Americans as the "minority of minorities," neglected by traditional recruitment programs. The program seeks to encourage Native American undergraduates to pursue a medical education.

1995 HMS commemorates the 50th anniversary of its admission of women. At the celebratory banquet, Harvard President Neil Rudenstine says, "All of that struggle and delay for something that in retrospect seems absolutely natural, totally self-evident, and just about as controversial as decaffeinated coffee after



dinner. But then, we are reminded of Charlotte Whitten's quip, 'Whatever women do they must do twice as well as men in order to be thought to be half as good. Fortunately, this is not difficult.' The first part of the statement probably accounts for the delay in getting all of you into school. But the last line, about its not being difficult, accounts for the eventual victory that we're celebrating right now....More needs to be done. More will be done."

1998 HMS Dean Joseph Martin states, "Diversity in our pro-

WHY CAN'T A WOMAN BE MORE LIKE A MAN?

In 1970, it was exatic to be a woman going into medicine, but there was o downside. We hod been given a precious place in our medical school class ot o mon's expense, and we were not allowed ambivalence. Some brove souls did create waves, but ot their peril. Our job was to fit in. We weren't supposed to be battered by the lock of chong-ing rooms, and we were expected to smile ot surgeons' comments about boking cookies. In my hoppiness at becoming o doctor, I tried ta averlaak the disparities.

Whot bothered me, though, was that I felt like o freok. The men around me in the

omphitheaters seemed to be taking it all in, while I felt smothered by the core curriculum. I was depressed that the qualities I thought would make me o good doctor were being drummed fram my personality. Fortunately, I joined o group of students interested in discussing their experiences. I now could look around the omphitheaters and see friends.

Although women in the Class of 1974 weren't the first wove af women physicians, we were pioneers, and we still struggle in the wilderness of medicine. There hove been changes, though. Na langer do most women grovitote to pediatrics ond psychiatry. We

are ancologists, surgeons, ond subspecial-ists. Potients, who have discovered that women make greeot doctors, seek us out.

Before our 25th reunion, I conducted an informol survey, along with Carolyn Compton '74 and Nara Nercesson, ossistant dean for alumni offiours ond special projects. We sent questionnaires to women in the Classes of 1974 ond 1999, asking about their experiences ot HMS. Hod they been sexually harassed? Hod they been able to find mentors? Hod they made compromises? We received 6 responses aut of 29 from the first class and 11 out of 25 from the second class.

Ten of the 11 women from the Class of 1999 reported hoving enjoyed medical schaal. One wrote that it was, "Much better

grams is not a question of fairness, but a question of quality—the quality of our educational programs, the quality of care in our medical community, and the quality of our research endeavors. A more diverse and culturally representative medical community practices higher quality medicine and addresses research issues more comprehensively.”

1999 Dean Martin hosts what he describes as a “long overdue” town meeting on gay and lesbian issues, despite a letter of protest from an HMS faculty member who describes “sexual perversity” as being “problematic to the



member of the Class of 1998

than college because of its community feel.” There were complaints, such as: “Empathy for patients wasn’t always applauded as much as strong personalities and efficiency.” Two had received “cute comments” from patients or male residents. Another wrote, “I didn’t feel discrimination, but fields such as general surgery are still dominated by men.”

Most of the Class of 1999 respondents had found women mentors, although several mentioned that female mentors were easier to find during the clinical years. One graduate had found only male mentors. “Most women faculty,” she wrote, “seemed too stressed to be generous with their time.”

In contrast, none of the members of the Class of 1974 had had women mentors.



Members of the Class of 1999

majority of Americans.” At the town meeting, Martin addresses the issue of homophobia both nationally and in the medical community, pointing out that homophobia is “the last socially permissible bastion of prejudice” and adding that HMS still has “a long way to go,” given the examples of intolerance reported by students in clerkships. He stresses the need to close the gap that differences tend to create between people and to see beyond those differences, adding, “there is only one moral way to deal with these differences: by acceptance, by recognition of the value that differences bring.”

The Harvard Medical Women’s Forum is held to mark the 50th anniversary of the first women graduates of HMS. Since 1949, HMS has graduated more than 1,700 women, and for the first time, the graduating class is more than 50 percent women, yet speakers at the forum point to the need for more progress. In 1999, women represent only 9.3 percent of professors, 15.7 percent of associate professors, and 25.7 percent of assistant professors. Their highest representation—at 39.5 percent—is in the ranks of lecturers and instructors.

A series of events are held to commemorate 30 years of affirmative

action at HMS. Since 1973, the School has graduated nearly 700 underrepresented minority students. In medical schools across the country, these alumni represent at least three deans, one associate dean, five department chairs, seven division chiefs, 13 full professors, 12 adjunct or visiting professors, 26 associate professors, and 72 assistant professors.

The entering class includes 49 Asians and Pacific Islanders, 20 African Americans, six Mexican Americans, two Puerto Ricans, and two Native Americans. ■



Women from 1949 celebrate their 50th

About half had experienced gender discrimination, and all felt they had made major compromises. Their comments included: “I felt out of place”; “I feared I wouldn’t be taken seriously”; “People said unbelievably offensive things”; and “It was lonely, and it wouldn’t have been had there been more women students.”

Women in medicine still have a long way to go. I was reminded of our struggle when I read Ariel Swartley’s account of character Doug Ross’s departure from “ER” in the *New York Times*. She wrote: “Neither is it Dr. Ross’s outflow stance per se that’s so attractive. Partly it’s the fact that it’s exercised in the rigidly hierarchical context of a hospital, where the ranks of student, intern,

resident, and staff are maintained with near-feudal insistence, and where women are offered constant reminders that gender equality is still perceived by large segments of the population as a negotiable demand rather than an inalienable right. There are moments when it seems that anyone who rides over this hierarchy rides for us.”

My hope for ourselves, for the women of the Class of 1999, and for our daughters, is that we will keep riding over that hierarchy and challenging barriers to equality, one step at a time. ■

Margaret S. Ross ’74 is staff psychiatrist at the Massachusetts Institute of Technology Medical Department.

REUNION REPORTS



PHOTOS: RICHARD W. TUDOR

Francis D. Moore, Sr. '39: With memories as sharp as a Hastings lecture, a Cannon seminar, or a Zinsser lab, our energetic group gathered to join in the Alumni Day activities on Friday, with a luncheon table under the tent. That evening, about 35 of us came together for our main event, an informal dinner at The Country Club in Brookline. No speeches were permitted. Eben Alexander, our president, offered a few words of reminiscence and humor. The next day, we enjoyed a "lunch" in those sympestuous waters known as the Charles River basin. The weather was perfect, the river calm, and the full-service luncheon a gourmet treat.



1939 Not only were we able to renew old acquaintances, but we were able to look out on the banks of the Charles and realize how few changes had been made in those lovely parks and public buildings during the past 60 years.

We were confident that our generation had witnessed the best medicine of this century, and indeed were instrumental in practicing it, teaching it, researching to improve it, or all three. We all bewailed the prominence of the almighty dollar in corporate medicine as it has taken over American medical care through the managed care industry. We proposed toasts to the "good old days" several times over.

Our group consisted of the following alumni, many of whom were accompanied by their spouses: Eben Alexander, John Brabson, Bill Carleton, Vince Dole, Dan Ellis, Paul Harwood, Bob Hormell, Walter Kemp, Alfred Kummer, Steve Mahady, Colin McCriston, Francis Moore, Kash Mostofi, Arthur Pier, John Quinby, Lew Rathbun, John Stanbury, and Larry Stuppy. Mrs. Ed Dyer, Mrs. Victor Balboni, and Mrs. Lew Kane also attended.

Our Reunion Committee—including John Stanbury, Arthur Pier, and Dan Ellis—arranged all these activities, under the guidance of Dee Masiello in the Alumni Office.

With sadness we noted the death of one of our members shortly before the reunion. John Adams, professor of neurological surgery at the University of California, San Francisco, died on May 18 after a brief hospitalization. Although he had not been able to attend previous reunions, he had been planning to come to this one.

There has recently come to our attention an anonymous poem on some of the phenomena of our age group as we round out our 85 years:

*At our age, you know, they don't expect you
To hear every letter from A or B through Q
They don't complain if your vision's plenty
Worse by far than 20/20.
They accept with grace—No scowls nor glowers—
Your nocturnal rising in the wee-wee hours.
And if the love bug—remember?—weakly calls
Why, off we go to Viagra Falls! ■*



1944

CHESTER C. D'AUTREMONT '44: While it hardly seemed possible that our 53th reunion could catch up with us, it did, coming upon a fine party of youthful-appearing alumni in good spirits. Twenty-two classmates attended and celebrated first at a sumptuous reception at Vanderbilt Hall. We were entertained and impressed by the HMS String Quartet. Looking at Vanderbilt Hall, we recalled our humor, flexibility, and ability to cope with the realities and the absurdities of being students during the war years.

On Alumni Day, we enjoyed the exchange of ideas and the lively discussions. We scrambled for our photograph, then retired in different directions until dinner at the Harvard Club that evening. There the roll of classmates who had died since 1994 was read. Following this, Ronald Arky, the Charles S. Davidson Distinguished Professor of Medicine at HMS, spoke in a pleasantly informal way

of current teaching and newer processes of learning at HMS.

We were then treated by Hank Bahnsen to a clear and humorous discussion of the physics of the harmonica—as well as the anatomy and physiology of the musician. We were fascinated by his grasp of the science and the artistry of the instrument—just what one would expect from such a scholar and skilled player. While his actual paper on the topic appeared in an ENT journal, it was that eminent medical publication, the *Wall Street Journal*, that brought Hank to the attention of many classmates. Front page article, photograph and all, the *Journal*, I knew, was up to some good for those of us who aren't Republican.

Saturday we repaired to the harbor for a delightful cruise in bright sunshine and cool breezes. The food was good, the company was great, and we enjoyed more of Hank's music. It was a grand occasion. ■

fiftieth

MORGAN VIGNERON '49: The Class of 1949 assembled in surprising strength to celebrate its 50th. Those heady days of the later forties came alive again for us, informed by the perspective of all that has happened since. Dinner together at HMS (85 classmates, spouses, and guests) set the tone. Our own Daniel Tosteson cruised the scene, giving evidence of the friendliness of the takeover by our new leader, Dean Joseph Martin. The latter thoughtfully and politely addressed us as the "famous Class of 1949," assuring us, just before we ate, that HMS is strong and heading for ever greater accomplishments in the difficult times ahead.

The next morning, the Alumni Day addresses were held under the tent in beautiful weather, which dutifully lasted through the weekend. These talks included that of classmate Raquel Cohen, who is working as a psychiatrist in the field of natural disasters. The class was informed of the activities of alumni from other classes, and we were commended for our generous giving.

The weekend in Maine found the water cold but hearts warm. Visiting was leisurely and memorable. At our final dinner, all classmates had a chance at the microphone, with Gooch Parker playing emcee. The still dashing Spitfire pilot John Keller even sang us a tuneful, World War II barracks ballad. This reunion marked a golden and poignant moment. In clear, well-chosen words, Jim Jandl had us face the reality that never again would we all be together in one room in such a gathering. The class was great at its 50th. All who were unable to attend and those who have gone before were fondly remembered and much discussed.

The class thanks the committee, the fundraisers, and the Alumni Office, particularly Nora Nercessian, Dee Masiello, and Jennifer Schmitt.

On a personal note: being a member of this class and attending its 50th are precious and undeserved privileges. Many classmates have achieved noble goals, for which I respect them. If such a diverse group of people can like each other for so long, there is hope yet for mankind. ■

1949



1954

ARTHUR R. KRAVITZ '54: True to its tradition, the Class of 1954 came together in impressive numbers for renewed friendships and warm memories in grand style.

Festivities began on Thursday night with a wonderful cocktail hour and dinner in the Waterhouse Faculty Room of Building A. Most of us also attended Alumni Day on Friday morning and heard interesting presentations capped by the remarks of Dean Joseph Martin, speaking to us as a reunion class for the first time in his tenure. We all feel that HMS is in excellent hands as it enters the new millennium.

Later on Friday, 83 people, including 43 members of the Class of 1954, repaired to the Ocean Edge Resort on Cape Cod for the weekend. We did what we do best as a group: We shared experiences about retirement, travel, family, politics, professional life, and the problems of health care. Several of us made use of the tennis and golf facilities, revealing much residual spryness, to say nothing of competitive spirit. There was a sensational clambake on Saturday night during which some of our classmates, with bet-

ter-than-average memory retention, told hilarious stories about the old days.

There were warm goodbyes and a sense of deep satisfaction as we went our separate ways on Sunday morning.

NATHAN P. COUCH '54: Bill Shakespeare would affirm: "Age cannot wither nor custom stale the infinite variety, durability, affability, and wisdom of HMS '54." This reunion just reinforced that judgment. Ninety-two of our members—68 percent of the survivors—ordered reunion books skillfully compiled by Dave Marcello, the editor, along with Arthur Kravitz, Thomas O'Brien (president-for-life), Miles Shore, and me.

Our celebration began on Thursday in Building A with wine and crudités (vegetables, not words), followed by dinner for 78 surrounded by portraits of departed deans. The incumbent, Dean Martin (no, not *that* Dean Martin), gave welcoming remarks.

On Friday, we attended Alumni Day, which the dean closed with comments, both alarming and inspiring, about the financial hardships looming for teaching hospitals and medical schools, as well as revolutionary but costly medical research advances. He also reminded us of the debt weighing on many medical students.

Before lunch, we posed on the steps of Building A, where our kindly, honest faces were photographed. After lunch, we set out for the Ocean Edge Resort, where our rooms were on the grounds of a former golf course. On Saturday, some of the group played golf or tennis, while others wandered randomly until gathering at twilight for a reception and clambake. Impromptu speeches, punctuated by reminiscences and buffoonery, followed dessert and concluded with thoughts by President O'Brien. He had been moved, he said, by the deans' portraits in the Faculty Room during our Thursday dinner. He recalled our own Dean George Packer Berry and what he would say to us: "You [expletive]s burned a black hole in my tennis court!"—the prank in the Vanderbilt Hall courtyard our class will forever remember, just as Dean Berry did. On Sunday, we went home, pleased with ourselves. ■





1959

BUCKNAM MCPHEE '59: "Vision and Perseverance—to Kim McCully, who saw the truth before the rest of us, indeed before the rest of medicine, and who would not be turned aside." These words were engraved on the silver tray the Class of 1959 presented to classmate Kim McCully at our 40th reunion dinner. Twenty years ago, Kim's persistent focus on his groundbreaking research on homocysteine led to the loss of his appointments at Massachusetts General Hospital and HMS and a devastating period of unemployment. In the last 18 years, Kim's research has led to recognition by the medical establishment of the homocysteine theory of arteriosclerosis.

Seventy-seven classmates and spouses returned for our reunion. On Wednesday, we gathered for a cocktail buffet in the old Warren Museum space of Building A. Old friends were greeted, and news was exchanged. No one seemed to miss the old specimens in formalin-filled bottles.

Thursday evening brought greetings from Dean for Medical Education Daniel Federman at our dinner at the Union Club. An open bar, good food, and familiar faces gave rise to easy conversation. Although faces had changed but little, hair color and waistlines seemed to have altered for some of us.

On Friday, we left for Cliff House, a seaside resort hotel in Ogunquit, Maine.

Our focus was on change, a phenomenon many of us found familiar. While tennis, golf, and sightseeing competed, the class gathered for two seminars. The first, on retirement, kept an audience of '59ers and spouses fascinated for almost three hours. A number of us are fully retired, some are partially retired, others are actively planning retirement, and some are just starting to think about it.

Our second session, on the current state of medicine, drew an equally large audience. We all seemed to be strong at identifying problems, but weak on devising solutions. Many of us tended to see ourselves as a big part of the problem. In our fascination with research and technology, we had promised—or allowed politicians to promise—too much. We had not concerned ourselves enough with compassion, had focused too little on cost-effective treatment, and had allowed the public's confidence in us to be squandered. Solutions seemed to center on more effective leadership by physicians—the idea that we, both as a profession and as individuals, must concern ourselves more with issues such as access to care, compassionate practice, and effective, evidence-based medicine. We must not allow insurance companies and politicians to promise what we cannot deliver. Few were sure just how to accomplish these reforms. ■



19'64

ROBERT W. MCCARLEY '64: Our reunion, blessed by June-perfect New England weather and the presence of some 90 class members and guests, began Thursday evening with a reception at the South End home of Dave Chapin. While catching up on each other's lives, we enjoyed this renovated Boston row house, circulating and conversing up and down its three levels. Friday night was dinner at Boston's classic Algonquin Club, courtesy of Joe Hurd, where the Brahmin atmosphere formed a backdrop to our life histories. On Saturday, we barbecued, croqueted, and walked and talked around the Endicott Mansion, a classic New England estate.

A special feature of our reunion was the quality of our relationships with each other. There may be something magical about having reached the age of 60, for we had a warmth and openness of personal communication like at no other previous reunion. Our class has always had a large turnout relative to other HMS classes, and, at this reunion, we identified a palpable positive feeling toward each other and the class as a whole as the underlying

reason. One of the women, "a significant other," suggested that our class, nearly all men, was maturing to the point that we could finally express feelings as women have always been able to do.

Paul Bittenwieser noted that, while we have many nationally and internationally famous members of our class, it was the quality of our personal relationships that were now in the forefront. Another class member said that, since we had done pretty much what we could be expected to do in terms of careers, we were now reflecting on other facets of our lives. Some of us were still in love with our careers, and some thought it was a dying relationship, but we all felt open to talk about our lives as they now stood and about our class, our common initiation into the mysteries of medicine and HMS, and our shared life's journey. Yes, competition was a part of our earlier relationships, but that was now secondary to the expression of other feelings.

No notes of discord? The managed and independent care pathway wars were still there, but this wasn't the main issue at this reunion. With our renewed contact, we gave updates of our lives. We professed pleasant surprise over good fortune—and deep sympathy for tragedy, most often in the form of personal illness of class members or their families, events that appeared to be random and unfair—a kind of genetic roulette—and events to which we are all now increasingly vulnerable.

Had our class been present at the now-passed golden age of American medicine, enjoying both freedom and wealth, as well as the fruits of a scientific revolution? The large number of our offspring who are now entering medicine suggest that our core idealism and love of the profession have been transmitted. The new generation might not be so uncomfortable as we in a different environment, and, indeed, might like it even more.

We missed those classmates not there and were grateful for being in touch through Marv Corlette and Kay Aldredge's compilation of the red reunion books. ■



1969

GEORGE E. THIBAUT '69: Thirty-two members of the Class of 1969 attended at least one of the functions during Alumni Week. Several classmates traveled a great distance to come to the reunion: Lenny Altman from Seattle, Bill Scaman and Penny Knapp from the Bay area, Steve Lemkin and Tom Freeman (also here for his Harvard College 35th) from Los Angeles, Curt Freed from Denver, and Bruce McLeod and Sharon Murphy from Chicago.

Thursday night we had cocktails and hors d'oeuvres on the grounds of Steve Kanner's new home in Lincoln, overlooking his apple orchard—a beautiful setting. On Friday, Alumni Day events included a stimulating discussion, as speakers and audience members juxtaposed the great potential benefits of advancing biomedical science with the ethical dilemmas in an increasingly complex society.

At the Alumni Day event, Sharon Murphy took over the gavel as the president of the Alumni Council to take us into the Year 2000. We could not have a better person in that role.

Friday night we had an outstanding dinner at the Boston Harbor Hotel in a private room with a spectacular view of the harbor. The food was excellent, and we had a lively discussion as many classmates got up, Quaker meeting style, to say what was on their minds. Much of the discussion both that evening and throughout the weekend centered around reassessing priorities and making new choices. Many of us, I believe, are trying to sort out what is really important in the panoply of things we have to do. One of the real benefits of the weekend was the opportunity to share those personal reflections with a group of people with whom we are comfortable and whose views we value highly.

Saturday Barb and I had the pleasure of hosting those who were still around for a clam bake at our place on Sagamore Beach. I will carry with me happy memories of laughter emanating from the beach and groups sitting on the sand and on our patio reminiscing and reconnecting. Those happy memories will sustain me for at least five more years until we get together again at our 35th. ■

THOMAS NAJARIAN '74: All who attended the 25th reunion enjoyed the renewed friendships and were able to share both personal and professional experiences. A welcome reception Wednesday night at Eleanor Hobbs's home preceded the next day's class symposium and dinner. Our class agent, Tim Russell, came all the way from California even though he was able to attend only Eleanor's reception on Wednesday. He did manage, however, to make his presence felt by reminding some of us that our class gift pledges had not yet been received. Our gift stands at \$150,000 and counting.

After Friday's Alumni Day program, we traveled to the Boston waterfront for a tour of the New England Aquarium and dinner at the Chart House. The weather cooperated for the entire weekend to add to the beauty of Boston in the early summer.

In addition to the class symposium, the highlight for many of us was the Saturday clambake so generously hosted by

Dave and Elaine Koh at their oceanfront home in Marblehead. The weather was perfect, and I can still smell the great ocean breezes. We enjoyed drinks, lobster, clams, hot dogs, corn, dessert, sun, and ocean views, as well as walking on the beach, swimming, talking, trampolining, singing, and playing.

For many of us, it does not seem like 25 years have passed. Even the rock group consisting of Dave Koh and his daughter, Bob Stark, and other classmates seemed as if they had been playing together regularly, even though the last time was five years ago at Dave and Elaine's during the 20th reunion. Besides the entertainment value and group sing-along complete with printed lyrics to all those garbled sixties songs, the band managed to clear away a nice spot on the beach below us for our class to enjoy exclusively for the afternoon.

I hope that all enjoy good health and happiness until we meet again for our 30th reunion. ■

19**74**





1979

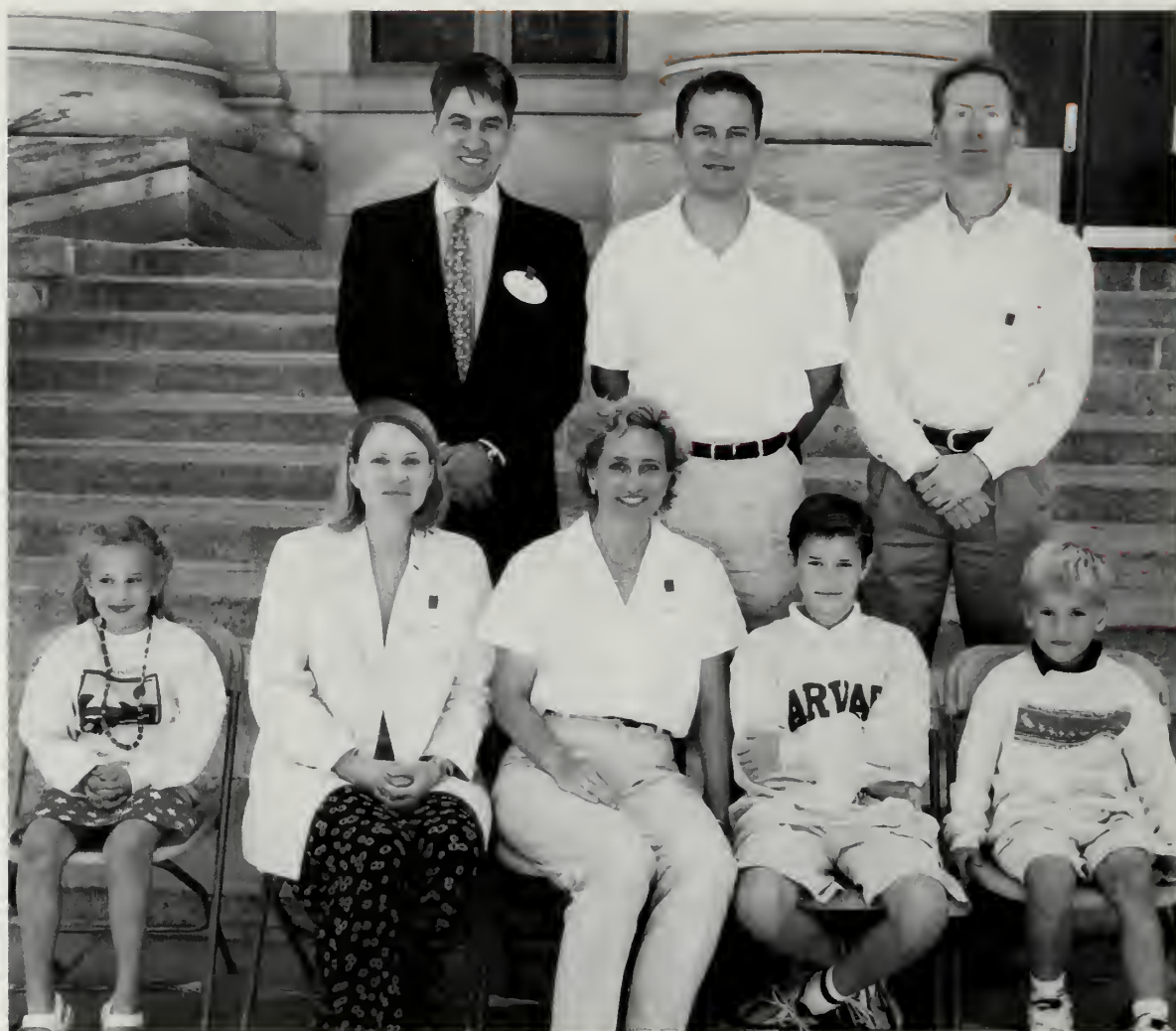
SUSAN M. WITKIE '79: We haven't really changed—well, not *that* much. The 35 members of the Class of 1979 who dined at Bay Tower and Larz Anderson Park can all attest to that, and we had fun catching up with each other. It's true that even Andy Satlin and Matt Breyer look a few years older. (Now they look 25 instead of 16.) And these days Mel Gonzalez and John Warbritton look like distinguished young political leaders (wait—they always did). But despite shorter (or less) hair, it still felt like we were sitting around the tables at Vanderbilt Hall; one of the finest tales recalled was that of A. J. Rogers, who recounted when his hair first got short ended at HMS—it was during the time of 'fros and freedom and had to do with Dan Rome and a Bunsen burner.

While classmates who are not based in Massachusetts assumed that the 19 who live in the Bay State see each other regularly, except for the still-happily

married Nancy Bennet and Gerry Aurigemma (who do still see each other a couple of times a week between carpools, soccer dates, Little League, and work commitments), our reunions are the main occasions we locals have to catch up with one another. (In fact, I was surprised and pleased to see Leo Troy again several weeks later at Liz Kincannon's delightful luau wedding in Denver.) Rhonda Rand and Marlene Krauss seem to keep up with each other as much as anyone in the class, and that's a California New York relationship. Good for them—they know what's important!

Somehow, when Mike Hirsh, Chris Doyle, John Ingard, Tony VanNiel, Bill Bayer, Tom Sterne, Tom Campbell, and Dave Dorsky stood together, I remembered the old football games some of our classmates played in the Quad and beyond in the old days. And, when I saw Dea Angiolillo, Liz Woods, Mary Briggs, Pam Kellogg, Nancy Oriol, Anne St. Goar, Judy Stein, and Susan Haas chatting and eating, I was reminded of Vanderbilt Hall lunches. I almost expected Cheryl Warner to turn a cartwheel and do splits (always impressive) to verify the travel back in time.

From Oregon (Gary Jones) to Florida (Marguerite Barnett), from Maryland (Eve Higginbotham) to Massachusetts (Vikas Sukhatme), we came and enjoyed. It was only a brief blink in busy lives. But we had fun and were reminded of our youth, and anything that can accomplish that is special indeed. We toasted to and gossiped about our absent classmates, and we expressed hope that we'd see everyone in 2004. We won't have been together since the last millennium by then, so we urge everyone to make it. ■



1984

OREN GRAD '84: This year's 15th reunion was a quiet affair, with only a few sightings reported of 1984 classmates on the Quad for the daytime events, and Friday evening's reception and dinner attracting a small group of mostly local or soon-to-be-local alumni.

Attendees included Kirk Daffner, Ken Freedberg, Joseph Glenmullen, Marcia Goldberg, Paul Johnson, Michael Longaker, Sally McNagny, Rick Mitchell, Bob Segc, and Karen Victor. Jeff Macklis was able to stop by for a quick hello before dinner as well.

The beautifully restored third-floor atrium of Building A brought memories of exotic specimens floating in bottles and of histology and pathology lab exercises long past. Dinner conversation among classmates and spouses

revolved around work and family, spiced, as always at such gatherings, by the discovery of small-world connections hitherto unsuspected. News included the return of Marcia Goldberg and Sally McNagny to Boston from New York and Atlanta, respectively, as well as momentarily forthcoming (for Marcia) and recent (for Paul) additions to the family.

Conversation continued late into the evening, until the waiters finally pulled the tablecloths out from under us and shoed us out the door. A round of goodbyes on the steps of Building A brought a close to our pleasantly low-key gathering. We hope that many more of us will be able to join in renewing the tradition for our 20th. ■

TENTH

1989

DOMENIC A. ZAMBUTO '89: The tenth reunion of the HMS Class of 1989 was everything a reunion should be. An excellent turnout combined with superb weather led to a terrific time for all. At the time of the reunion, Lisa Frost and I were each celebrating the birth of new children. Observers would never have guessed that Lisa, who hosted the reception on Friday, had given birth just two weeks earlier (we joked that neither of us could have known what we were getting ourselves into when we committed our homes to the reunion events, since we didn't know we were expecting at the time). Lisa's new house is beautiful and so is her baby, as all who enjoyed the reception can attest. As our classmates gathered that evening, it became clear that, although we have not changed at all physically, we have grown tremendously in our personal and professional lives.

The next day, assisted by perfect weather, I hosted a cookout at my house in North Andover. It was great fun seeing all the children, and we had a wonderful time together. I would say this to all my classmates: if you couldn't make this reunion, please don't miss the next one! Five years will pass very quickly. As always, I will be looking for help organizing our 15th reunion.

In the meantime, I would like to express my appreciation to Lisa Frost and Darrell Smith for all their help on our tenth-year reunion, which could not have happened without them. I also want to thank the Alumni Association and, most of all, my wife, Grace, for being such a gracious hostess, especially when she had delivered our baby less than two weeks before the cookout. I look forward to seeing as many of you as possible at the 15th reunion. ■





1994

MARC S. SABATINE '94: Although few of us were able to make it for the official reunion photo, attendance was far better at the other events. Friday night, about 40 people came to dinner at the Bay Tower Room in downtown Boston. Although most of us were members of the Route 128 Club, several classmates came from as far away as the West Coast, including Amber Barnato, Laura Koth, Alisa Goldberg, and Mitra Mofid. Most of us had finished our residencies and were either starting as attendings or, in the proud tradition of delayed gratification, opting for further subspecialty fellowship training. Of course, none of this applied to our classmates who had entered surgical residencies, including Gretchen Schwarze and Kingsway Liu, who were both still in the middle of their grueling training.

The night was spent catching each other up on our various activities since graduation. True to their submissions for the reunion book, Jon Friedberg was now able to critique Italian food and



Laura Calvi was now able to discuss the Packers. Dan DiLorenzo, MD, PhD, MBA, stopped by briefly before going off to acquire a few more advanced degrees.

We also heard about our classmates who were unable to make it to the reunion. Typical for HMS, the reasons for some people's absences were as varied as our class itself, ranging from the academic (Ben Leder flying off to an endocrinology conference), to the entrepreneurial (Rich Lin obtaining an MBA from Stanford), to the ironic (Eric Johannsen being hit with a last minute ID consult by Susan Domchek before she and her husband came to dinner).

The next day we had a lovely picnic along the banks of the Charles River and got to see genetically well-endowed HMS '94 children. The proud parents included Tim Friel and Kristin Sinnock Friel, Terry Shanahan Czeisler, Atul Gawande, Jennifer Botti Page, Karen Loeb Lifford, and Vanessa Smith. Special congratulations go to Lauren Solanko Koniaris and Jessica Cohen Dudley, both parents-to-be. Walker Gawande was awarded the purple heart for coming to his dad's reunion picnic despite having broken his clavicle the day before. It was heartwarming to see that despite the rigors of medicine, many of our classmates had found the time to start families, and they universally attested to the joy that it brought them. After enjoying tasty barbecue fare under a bright blue sky, multiple cameras were used to capture every possible combination of HMSers, spouses, and children. If anyone would like copies of these photos, please contact me at Massachusetts General Hospital.

We look forward to seeing each other again at the tenth reunion! ■

Harvard Medical Alumni Association

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